Pioneer sound.vision.soul

Service Manual

ORDER NO.
CRT3389

HIGH POWER CD PLAYER WITH FM/AM TUNER

DEH-1750/XU/GS
DEH-1750/XU/CN
DEH-1770/XU/CS

COMPACT disc DIGITAL AUDIO

This service manual should be used together with the following manual(s) listed below. For the parts numbers, adjustments, etc. which are not shown in this manual, refer to the following manual(s).

Model No.	Order No.	Mech.Module	Remarks
DEH-1750/XN/GS	CRT3377		
CX-3110	CRT3178	S10.1	CD Mech. Module:Circuit Description, Mech. Description, Disassembly

PIONEER CORPORATION 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
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EXPLODED VIEWS AND PARTS LIST

PACKING(Page 8)

● **PACKING SECTION PARTS LIST**

* : Non spare part

Mark	No.	Description	DEH-1750/XN/GS	DEH-1750/XU/GS
	11	Carton	CHG5418	CHG5354
	12	Contain Box	CHL5347	CHL5354

Mark	No.	Description	DEH-1750/XN/GS	DEH-1750/XU/CN
	11	Carton	CHG5418	CHG5357
	12	Contain Box	CHL5347	CHL5357
	15-1	Owner's Manual	CRD3910	CRB1982(Casual Chinese)
	15-2	Installation Manual	CRD3911	CRB1983(Casual Chinese)
	15-3	Caution Card	CRP1310	Not used
*	15-4	Warranty Card	Not used	ARY7046

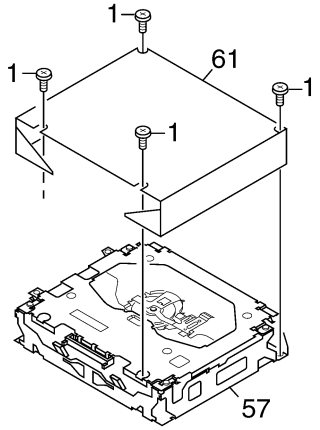
Mark	No.	Description	DEH-1770/XN/CS	DEH-1770/XU/CS
	11	Carton	CHG5419	CHG5355
	12	Contain Box	CHL5348	CHL5355

EXTERIOR(Page 10)

● **EXTERIOR SECTION PARTS LIST**

Mark	No.	Description	DEH-1750/XN/GS	DEH-1750/XU/GS
	57	CD Mechanism Module(S10)	CXK5605	CXK5601

Mark	No.	Description	DEH-1750/XN/GS	DEH-1750/XU/CN
	25	Detach Grille Assy	CXC3538	CXC3749
	43	Grille Unit	CXC3592	CXC3594
	57	CD Mechanism Module(S10)	CXK5605	CXK5604
	61	Sheet	Not used	CNM9404



Mark	No.	Description	DEH-1770/XN/CS	DEH-1770/XU/CS
	57	CD Mechanism Module(S10)	CXK5605	CXK5601

CD MECHANISM MODULE(Page 12)

● CD MECHANISM MODULE SECTION PARTS LIST

Mark	No.	Description	DEH-1750/XN/GS DEH-1770/XN/CS	DEH-1750/XU/GS DEH-1770/XU/CS
	34	Frame	CNC9962	CND2443
	43	Collar	CNV7798	CNV8447
	44	Guide	CNV7799	CNV8448
	60	Roller	CNV7218	CNV8189
	90	Pickup Unit(P10)(Service)	CXX1641	CXX1647

Mark	No.	Description	DEH-1750/XN/GS	DEH-1750/XU/CN
	34	Frame	CNC9962	CND2443
	43	Collar	CNV7798	CNV8447
	44	Guide	CNV7799	CNV8448
	60	Roller	CNV7218	CNV8189
	62	Arm	CNV8391	CXC3865(Arm Unit)
	63	Arm	CNV8390	CXC3864(Arm Unit)
	90	Pickup Unit(P10)(Service)	CXX1641	CXX1647

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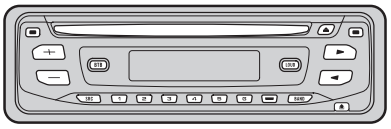
Service Manual



DEH-1750/XN/GS

ORDER NO.
CRT3377

HIGH POWER CD PLAYER WITH FM/AM TUNER

DEH-1750/XN/GS
DEH-1770/XN/CS

This service manual should be used together with the following manual(s):

Model No.	Order No.	Mech.Module	Remarks
CX-3110	CRT3178	S10.1	CD Mech. Module:Circuit Description, Mech. Description, Disassembly

For details, refer to "Important Check Points for Good Servicing".

PIONEER CORPORATION 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
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ⓒPIONEER CORPORATION 2004

K-ZZW. OCT. 2004 printed in Japan

SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

● Service Precaution

1. You should conform to the regulations governing the product (safety, radio and noise, and other regulations), and should keep the safety during servicing by following the safety instructions described in this manual.
2. Before disassembling the unit, be sure to turn off the power. Unplugging and plugging the connectors during power-on mode may damage the ICs inside the unit.
3. To protect the pickup unit from electrostatic discharge during servicing, take an appropriate treatment (shorting-solder) by referring to "the DISASSEMBLY".
4. After replacing the pickup unit, be sure to check the grating.

COMPACT disc DIGITAL AUDIO

[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety

Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

2. Adjustments

To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts

Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

4. Cleaning

For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws

To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

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1. SPECIFICATIONS

● DEH-1750/XN/GS

General

Rated power source ..... 14.4 V DC (allowable voltage range: 12.0 – 14.4 V DC)
Grounding system ..... Negative type
Max. current consumption ..... 10.0 A
Backup current ..... 5 mA or less
Dimensions (W × H × D):
DIN
Chassis ..... 178 × 50 × 157 mm
Nose ..... 188 × 58 × 18 mm
D
Chassis ..... 178 × 50 × 162 mm
Nose ..... 170 × 48 × 13 mm
Weight ..... 1.3 kg

Audio

Continuous power output is 20 W per channel minimum into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.
Maximum power output ..... 45 W × 4
Load impedance ..... 4 Ω (4 – 8 Ω allowable)
Preout max output level/output impedance ..... 2.2 V/1 kΩ
Bass/Treble:
Bass
Frequency ..... 100 Hz
Gain ..... ±12dB
Treble
Frequency ..... 10 kHz
Gain ..... ±12dB
Loudness contour
Low ..... +7 dB (100 Hz), +4 dB (10 kHz)
High ..... +10 dB (100 Hz), +6.5 dB (10 kHz) (volume: –30 dB)

CD player

System ..... Compact disc audio system
Usable discs ..... Compact disc
Signal format:
Sampling frequency ..... 44.1 kHz
Number of quantization bits ..... 16; linear
Frequency characteristics ... 5 – 20,000 Hz (±1 dB)
Signal-to-noise ratio ..... 94 dB (1 kHz) (IEC-A network)
Dynamic range ..... 92 dB (1 kHz)
Number of channels ..... 2 (stereo)

FM tuner

Frequency range ..... 87.5 – 108.0 MHz
Usable sensitivity ..... 8 dBf (0.7 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity ..... 10 dBf (0.9 μV/75 Ω, mono)
Signal-to-noise ratio ..... 75 dB (IEC-A network)
Distortion ..... 0.3 % (at 65 dBf, 1 kHz, stereo)
0.1 % (at 65 dBf, 1 kHz, mono)
Frequency response ..... 30 – 15,000 Hz (±3 dB)
Stereo separation ..... 45 dB (at 65 dBf, 1 kHz)

AM tuner

Frequency range ..... 531 – 1,602 kHz (9 kHz)
530 – 1,640 kHz (10 kHz)
Usable sensitivity ..... 18 μV (S/N: 20 dB)
Signal-to-noise ratio ..... 65 dB (IEC-A network)

Specifications and the design are subject to possible modifications without notice due to improvements. ▣

● DEH-1770/XN/CS

General

Rated power source ..... 14.4 V DC (allowable voltage range: 12.0 – 14.4 V DC)
Grounding system ..... Negative type
Max. current consumption ..... 10.0 A
Backup current ..... 5 mA or less
Dimensions (W × H × D):
DIN
Chassis ..... 178 × 50 × 157 mm
Nose ..... 188 × 58 × 18 mm
D
Chassis ..... 178 × 50 × 162 mm
Nose ..... 170 × 48 × 13 mm
Weight ..... 1.3 kg

Audio

Continuous power output is 20 W per channel minimum into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.
Maximum power output ..... 45 W × 4
Load impedance ..... 4 Ω (4 – 8 Ω allowable)
Preout max output level/output impedance ..... 2.2 V/1 kΩ
Bass/Treble:
Bass
Frequency ..... 100 Hz
Gain ..... ±12dB
Treble
Frequency ..... 10 kHz
Gain ..... ±12dB
Loudness contour
Low ..... +7 dB (100 Hz), +4 dB (10 kHz)
High ..... +10 dB (100 Hz), +6.5 dB (10 kHz) (volume: –30 dB)

CD player

System ..... Compact disc audio system
Usable discs ..... Compact disc
Signal format:
Sampling frequency ..... 44.1 kHz
Number of quantization bits ..... 16; linear
Frequency characteristics ... 5 – 20,000 Hz (±1 dB)
Signal-to-noise ratio ..... 94 dB (1 kHz) (IEC-A network)
Dynamic range ..... 92 dB (1 kHz)
Number of channels ..... 2 (stereo)

FM tuner

Frequency range ..... 87.5 – 108.0 MHz
Usable sensitivity ..... 8 dBf (0.7 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity ..... 10 dBf (0.9 μV/75 Ω, mono)
Signal-to-noise ratio ..... 75 dB (IEC-A network)
Distortion ..... 0.3 % (at 65 dBf, 1 kHz, stereo) 0.1 % (at 65 dBf, 1 kHz, mono)
Frequency response ..... 30 – 15,000 Hz (±3 dB)
Stereo separation ..... 45 dB (at 65 dBf, 1 kHz)

AM tuner

Frequency range ..... 530 – 1,640 kHz (10 kHz)
Usable sensitivity ..... 18 μV (S/N: 20 dB)
Signal-to-noise ratio ..... 65 dB (IEC-A network)

Specifications and the design are subject to possible modifications without notice due to improvements. ▣

A

B

C

D

E

F

2. EXPLODED VIEWS AND PARTS LIST

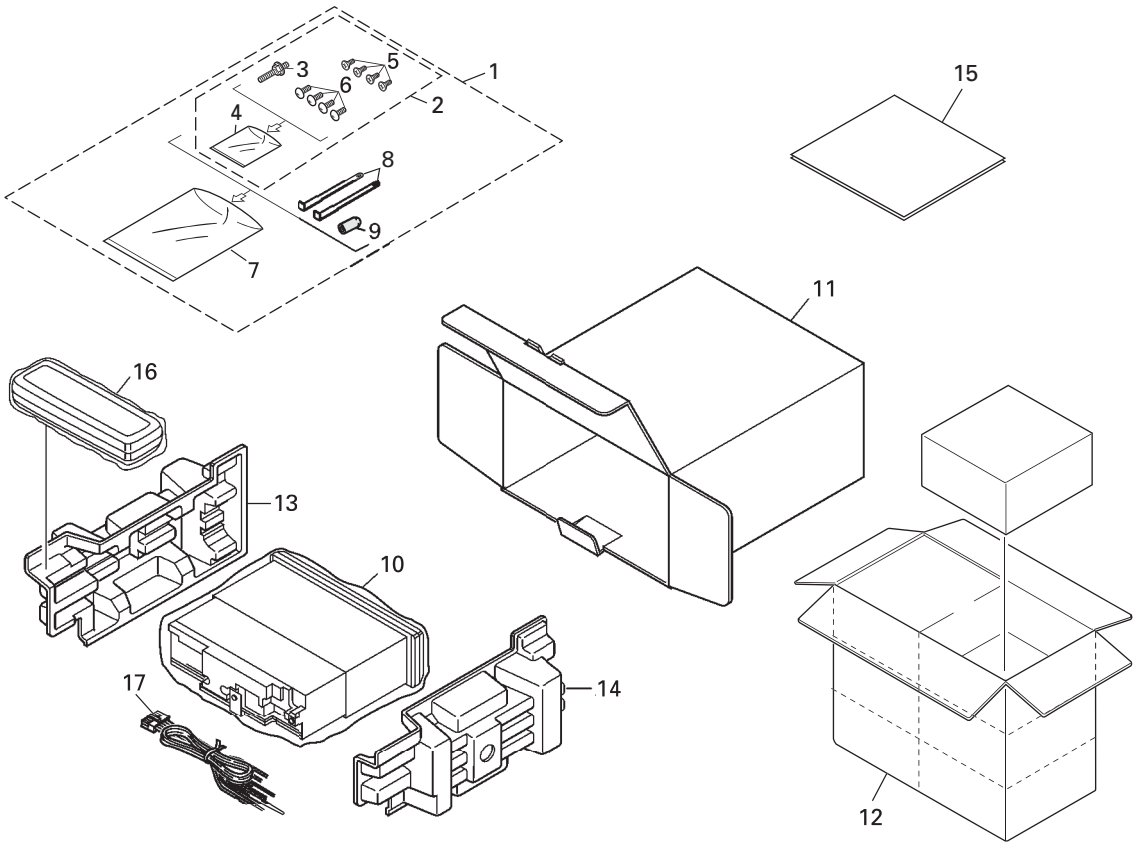
*NOTES : • Parts marked by " * " are generally unavailable because they are not in our Master Spare Parts List.*

• The ⚠ mark found on some component parts indicatesthe importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

• Screw adjacent to▽mark on the product are used for disassembly.

• For the applying amount of lobricants or glue, follow the instructions in this manual. (In the case of no amount instructions,apply as you think it appropriate.)

2.1 PACKING



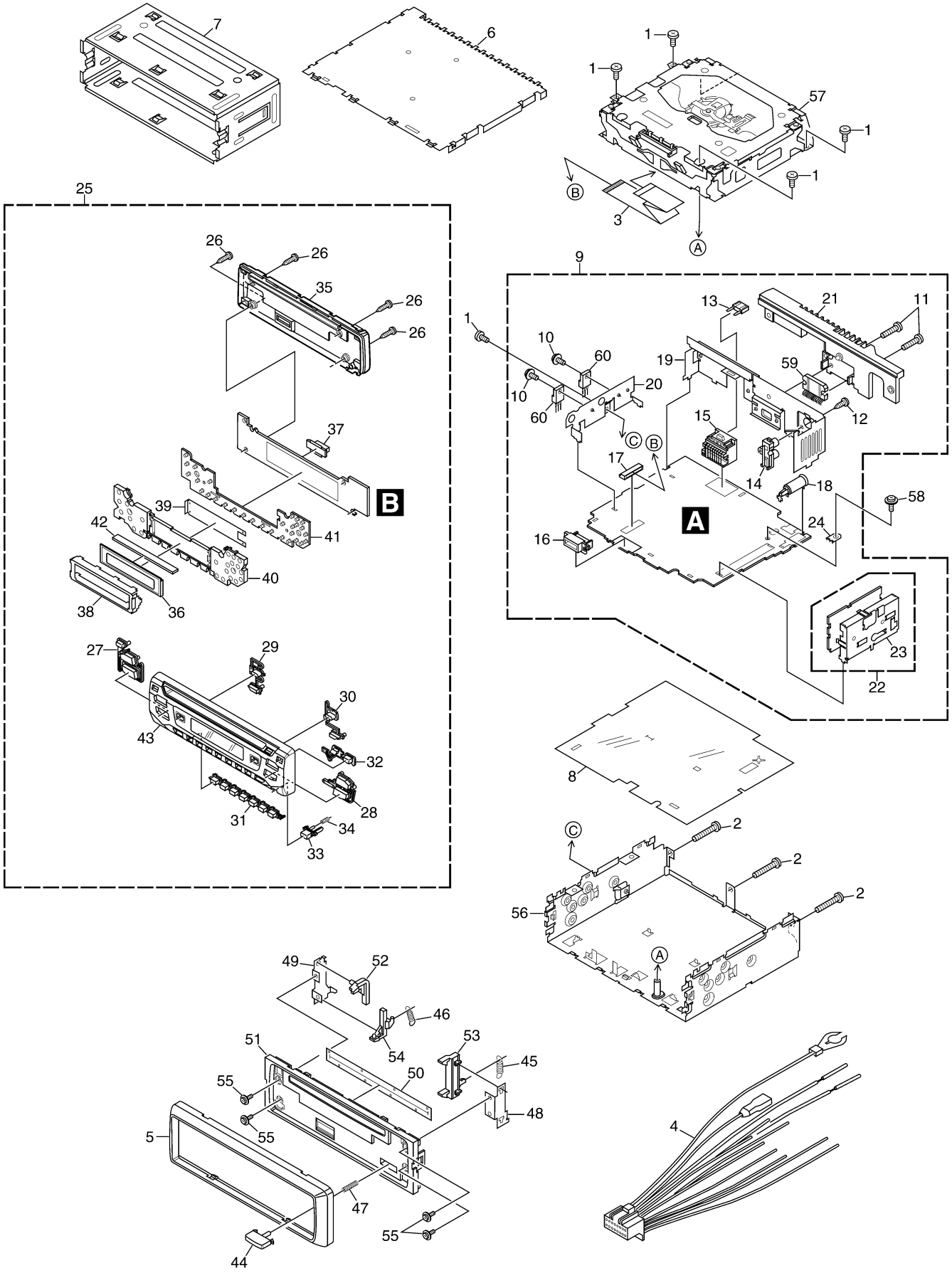
PACKING SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Accessory Assy	CEA4850
	2	Screw Assy	CEA3849
	3	Screw	CBA1650
*	4	Polyethylene Bag	CEG-127
	5	Screw	CRZ50P090FTC
	6	Screw	TRZ50P080FTC
*	7	Polyethylene Bag	CEG-158
	8	Handle	CNC5395
	9	Bush	CNV3930
	10	Polyethylene Bag	CEG-162
	11	Carton(DEH-1750)	CHG5418
		Carton(DEH-1770)	CHG5419
	12	Contain Box(DEH-1750)	CHL5347
		Contain Box(DEH-1770)	CHL5348
	13	Protector	CHP2664
	14	Protector	CHP2868
	15-1	Owner's Manual(DEH-1750)	CRD3910
		Owner's Manual(DEH-1770)	CRD3912
	15-2	Installation Manual(DEH-1750)	CRD3911
		Installation Manual(DEH-1770)	CRD3913
	15-3	Caution Card	CRP1310
	16	Case Assy	CXB3520
	17	Cord Assy	XDE7008

Owner's Manual,Installation Manual

Part No.	Language
CRD3910	English, Traditional Chinese, Arabic
CRD3911	English, Traditional Chinese, Arabic
CRD3912	English, Spanish, Portuguese(B)
CRD3913	English, Spanish, Portuguese(B)

2.2 EXTERIOR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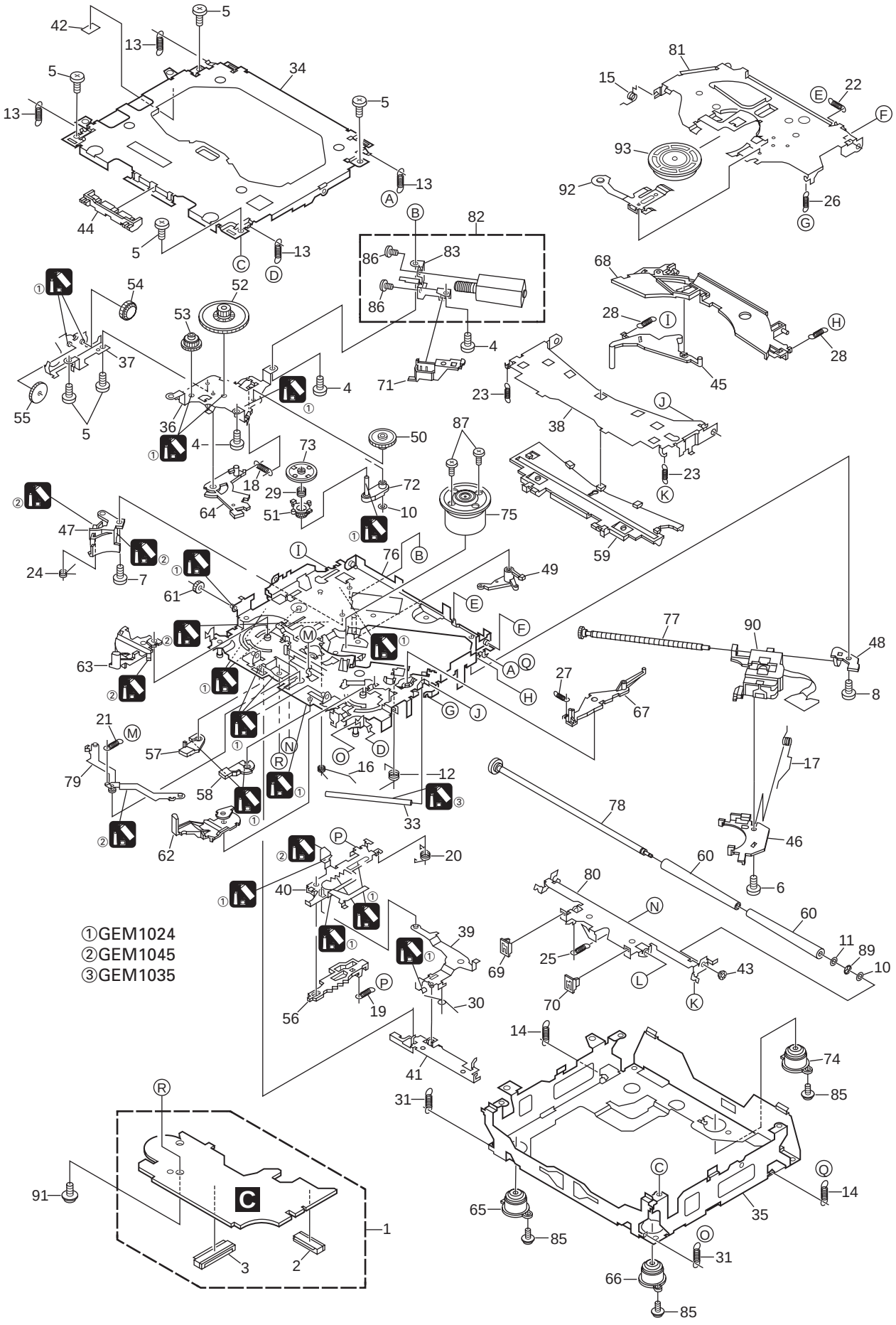
4

EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Screw	BSZ26P060FTC
	2	Screw	BSZ26P100FTC
	3	Cable	CDE7702
	4	Cord Assy	XDE7008
	5	Panel	CNS8048
	6	Case	CNB2793
	7	Holder	CNC8659
	8	Insulator	CNM9145
	9	Tuner Amp Unit(DEH-1750)	CWM9601
		Tuner Amp Unit(DEH-1770)	CWM9605
	10	Screw	ASZ26P060FTC
	11	Screw	BMZ26P160FTC
	12	Screw	BPZ26P080FTC
⚠	13	Fuse(10A)	CEK1208
	14	Pin Jack(CN352)	CKB1059
	15	Plug(CN901)	CKM1376
	16	Connector(CN831)	CKS3581
	17	Connector(CN651)	CKS3835
	18	Antenna Jack(CN401)	CKX1056
	19	Holder	CND2413
	20	Holder	CND2414
	21	Heat Sink	CNR1762
	22	FM/AM Tuner Unit	CWE1912
	23	Holder	CND1054
	24	Terminal(CN402)	VNF1084
	25	Detach Grille Assy(DEH-1750)	CXC3538
		Detach Grille Assy(DEH-1770)	CXC3542
	26	Screw	BPZ20P100FZK
	27	Button(VOLUME)	CAC8924
	28	Button(SELECT)	CAC8925
	29	Button(BTB,SRC)	CAC8927
	30	Button(LOUD,BAND)	CAC8928
	31	Button(1-6)	CAC8929
	32	Button(CD EJECT,AUDIO)	CAC8930
	33	Button(DETACH)	CAC8931
	34	Spring	CBH2210
	35	Cover	CNS8042
	36	LCD	CAW1847
	37	Connector(CN1801)	CKS3580
	38	Holder	CND2412
	39	Sheet	CNM9144
	40	Lighting Conductor	CNV8190
	41	Rubber	CNV8191
	42	Connector	CNV8192
	43	Grille Unit(DEH-1750)	CXC3592
		Grille Unit(DEH-1770)	CXC3994
	44	Button	CAC4836
	45	Spring	CBH1835
	46	Spring	CBH2208
	47	Spring	CBH2367
	48	Bracket	CNC6791
	49	Holder	CNC8042
	50	Cover	CNM6276
	51	Panel	CNS8044
	52	Arm	CNV4692
	53	Arm	CNV4728
	54	Arm	CNV5576
	55	Screw	IMS20P030FZK
	56	Chassis Unit	CXC3600
	57	CD Mechanism Module(S10)	CXK5605
	58	Screw	ISS26P055FTC
	59	IC(IC302)	TDA7386
	60	Transistor(Q921,991)	2SD2396

2.3 CD MECHANISM MODULE

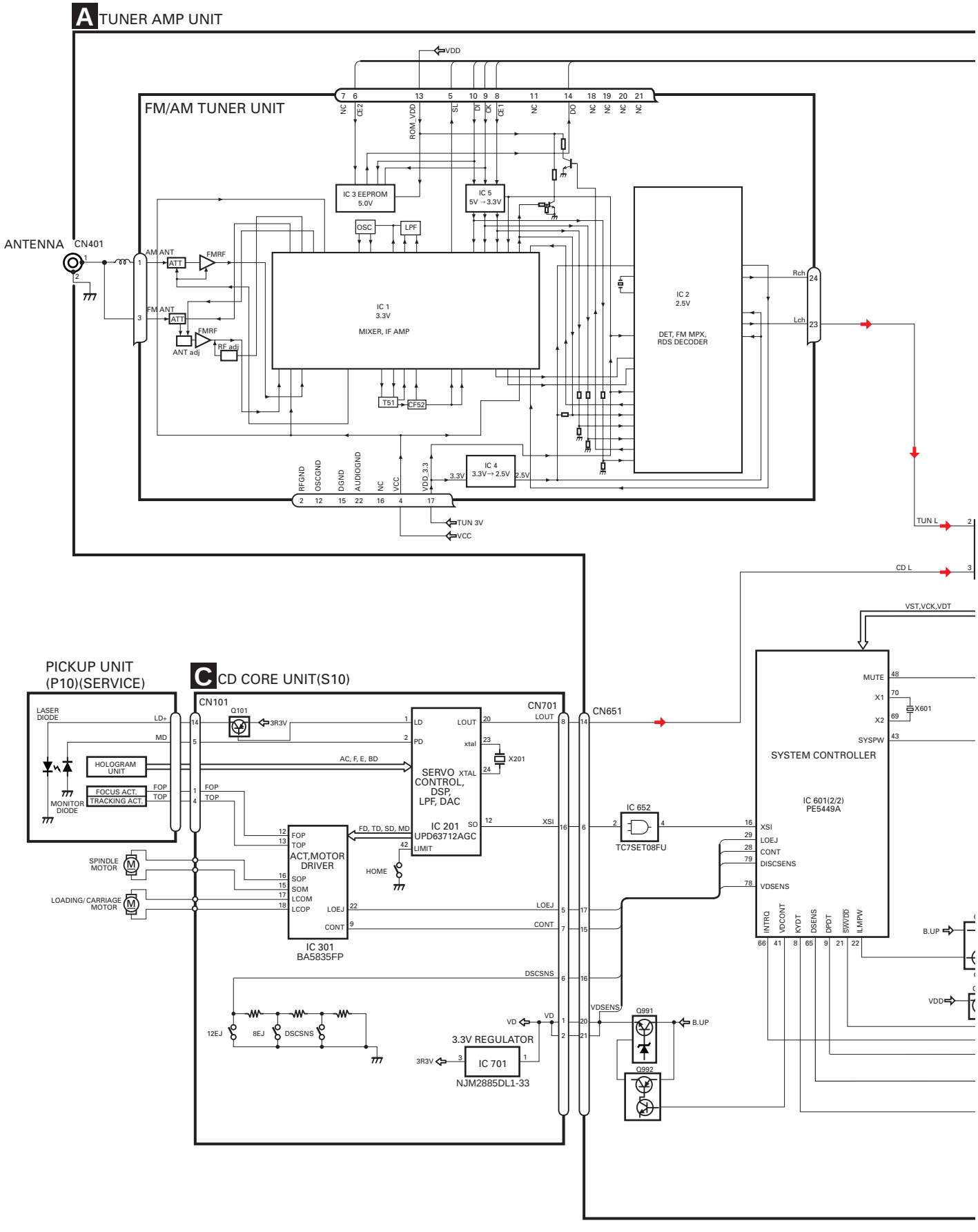


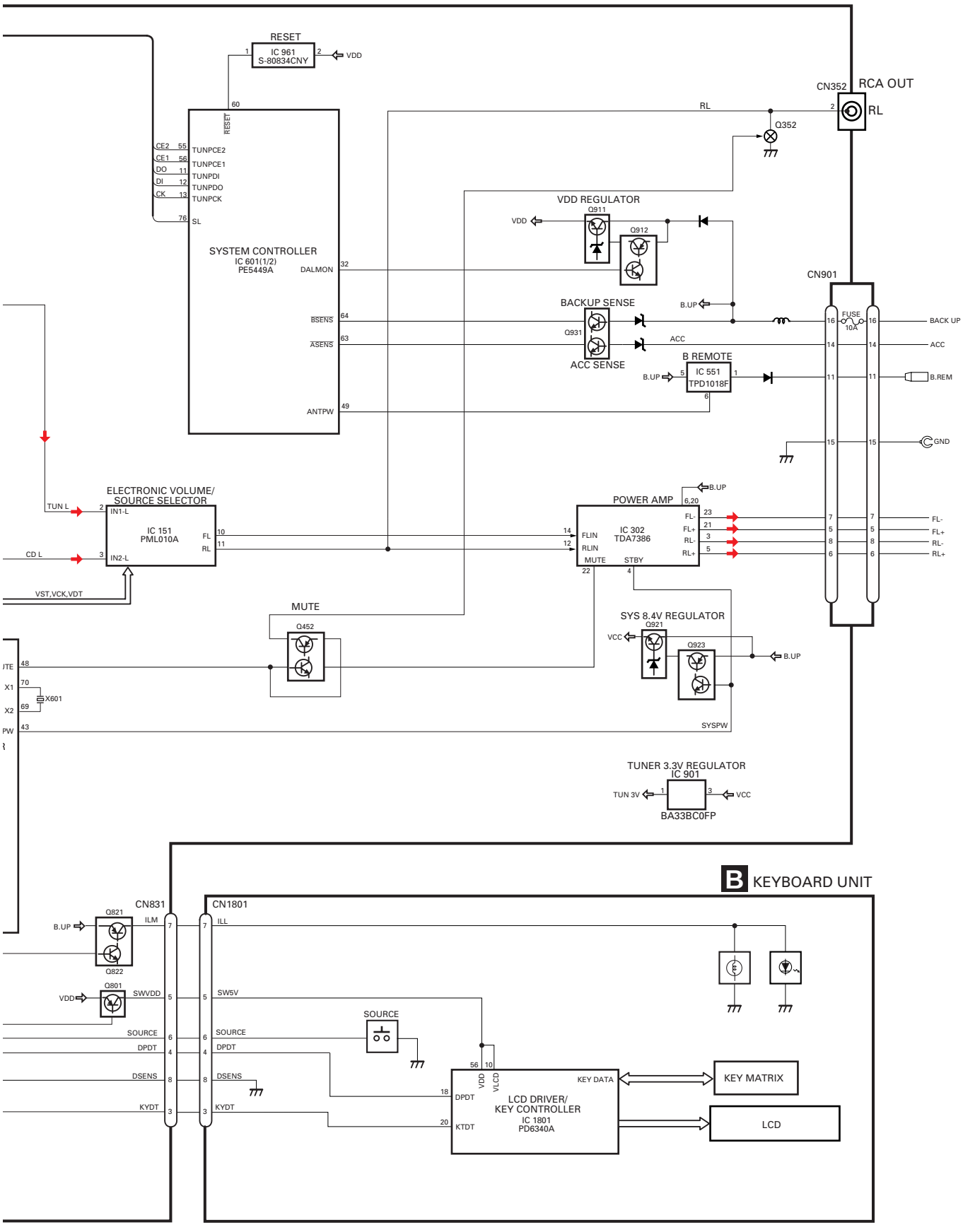
CD MECHANISM MODULE SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	CD Core Unit(S10)	CWX3110
	2	Connector(CN101)	CKS4182
	3	Connector(CN701)	CKS4188
	4	Screw	BMZ20P035FTC
	5	Screw	BSZ20P040FTC
	6	Screw(M2x4)	CBA1362
	7	Screw(M2x3)	CBA1824
	8	Screw(M2x3)	CBA1825
	9	•••••	
	10	Washer	CBF1038
	11	Washer	CBF1060
	12	Spring	CBH2390
	13	Spring	CBH2606
	14	Spring	CBH2607
	15	Spring	CBH2608
	16	Spring	CBH2609
	17	Spring	CBH2610
	18	Spring	CBH2735
	19	Spring	CBH2612
	20	Spring	CBH2613
	21	Spring	CBH2614
	22	Spring	CBH2615
	23	Spring	CBH2616
	24	Spring	CBH2617
	25	Spring	CBH2620
	26	Spring	CBH2621
	27	Spring	CBH2641
	28	Spring	CBH2642
	29	Spring	CBH2643
	30	Spring	CBH2659
	31	Spring	CBH2688
	32	•••••	
	33	Shaft	CLA4441
	34	Frame	CNC9962
	35	Frame	CNC9963
	36	Bracket	CND2712
	37	Bracket	CND1895
	38	Arm	CNC9968
	39	Arm	CND1909
	40	Lever	CND2032
	41	Lever	CNC9984
	42	Sheet	CNM8134
	43	Collar	CNV7798
	44	Guide	CNV7799
	45	Arm	CNV8403
	46	Rack	CNV8374
	47	Holder	CNV8376
	48	Holder	CNV8377
	49	Arm	CNV8378
	50	Gear	CNV8379
	51	Gear	CNV8380
	52	Gear	CNV8381
	53	Gear	CNV8382
	54	Gear	CNV8383
	55	Gear	CNV8384
	56	Rack	CNV8385
	57	Arm	CNV8386
	58	Arm	CNV8387
	59	Guide	CNV8388
	60	Roller	CNV7218
	61	Gear	CNV8389
	62	Arm	CNV8391
	63	Arm	CNV8390
	64	Arm	CNV8392
	65	Damper	CNV7313
	66	Damper	CNV7314
	67	Arm	CNV8394
	68	Arm	CNV8395
	69	Guide	CNV8396
	70	Guide	CNV8397
	71	Holder	CNV8398
	72	Arm	CNV8402
	73	Gear	CNV8400
	74	Damper	CNV7618
	75	Motor Unit(M1)	CXC4440
	76	Chassis Unit	CXC2318
	77	Screw Unit	CXB8729
	78	Gear Unit	CXC2397
	79	Arm Unit	CXC2316
	80	Arm	CND1896
	81	Arm	CND1894
	82	Motor Unit(M2)	CXB8933
	83	Bracket	CNC9985
	84	•••••	
	85	Screw(M2x5)	EBA1028
	86	Screw	JFZ20P020FTC
	87	Screw	JGZ17P022FTC
	88	•••••	
	89	Washer	YE20FTC
	90	Pickup Unit(P10)(Service)	CXX1641
	91	Screw	IMS26P030FTC
	92	Spring	CBL1635
	93	Clamper	CNV8372

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

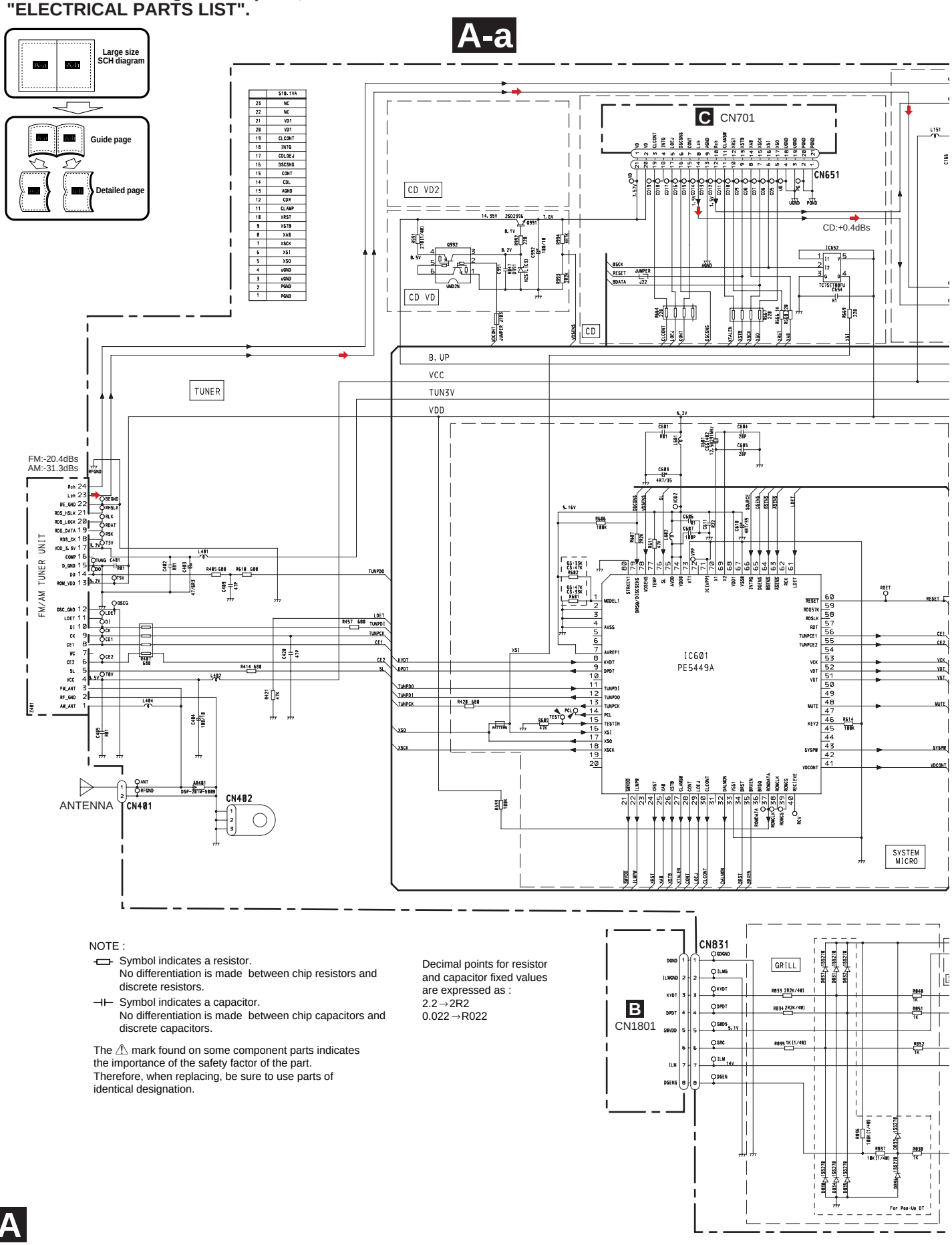
3.1 BLOCK DIAGRAM




RESET
IC 961
S-80834CNY
VDD
CN352
RCA OUT
RL
Q352
SYSTEM CONTROLLER
IC 601(1/2)
PE5449A
TUNPCE2
TUNPCE1
TUNPDI
TUNPDO
TUNPCK
SL
DALMON
BSENS
ASENS
ANTPW
VDD REGULATOR
Q911
Q912
BACKUP SENSE
Q931
ACC SENSE
B.UP
ACC
B REMOTE
IC 551
TPD1018F
CN901
FUSE
10A
BACK UP
ACC
B.REM
GND
ELECTRONIC VOLUME/
SOURCE SELECTOR
IC 151
PML010A
TUN L
CD L
VST,VCK,VDT
IN1-L
IN2-L
FL
RL
POWER AMP
IC 302
TDA7386
FLIN
RLIN
MUTE
STBY
FL-
FL+
RL-
RL+
MUTE
Q452
SYS 8.4V REGULATOR
Q921
Q923
VCC
SYSPW
X601
TUNER 3.3V REGULATOR
IC 901
TUN 3V
BA33BC0FP
B KEYBOARD UNIT
CN831
CN1801
Q821
Q822
Q801
ILM
SWVDD
SW5V
SOURCE
DPDT
DSENS
KYDT
ILL
LCD DRIVER/
KEY CONTROLLER
IC 1801
PD6340A
KEY DATA
KTDT
VDD
VLCD
KEY MATRIX
LCD

3.2 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)

Note: When ordering service parts, be sure to refer to " EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".



NOTE :

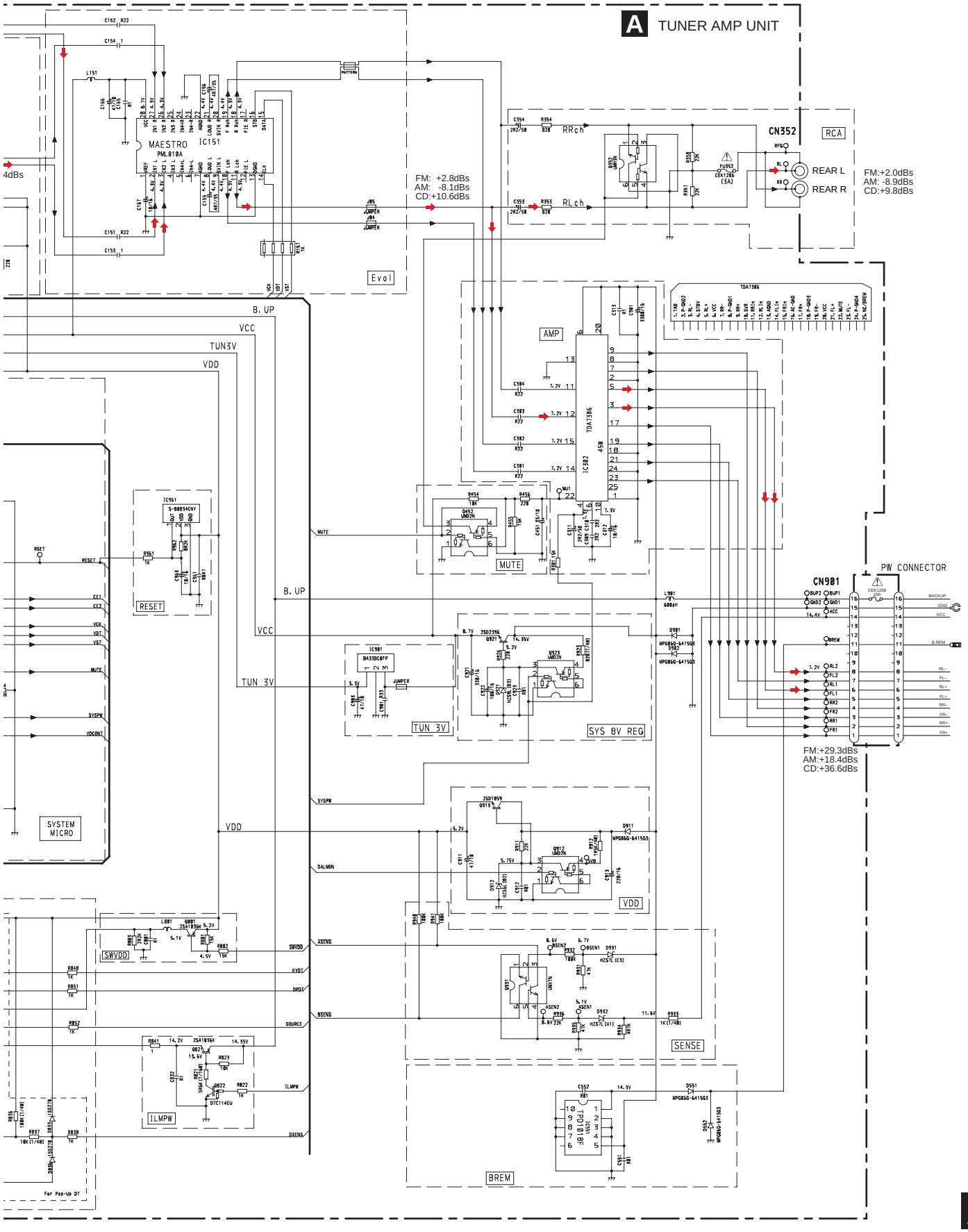
- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.

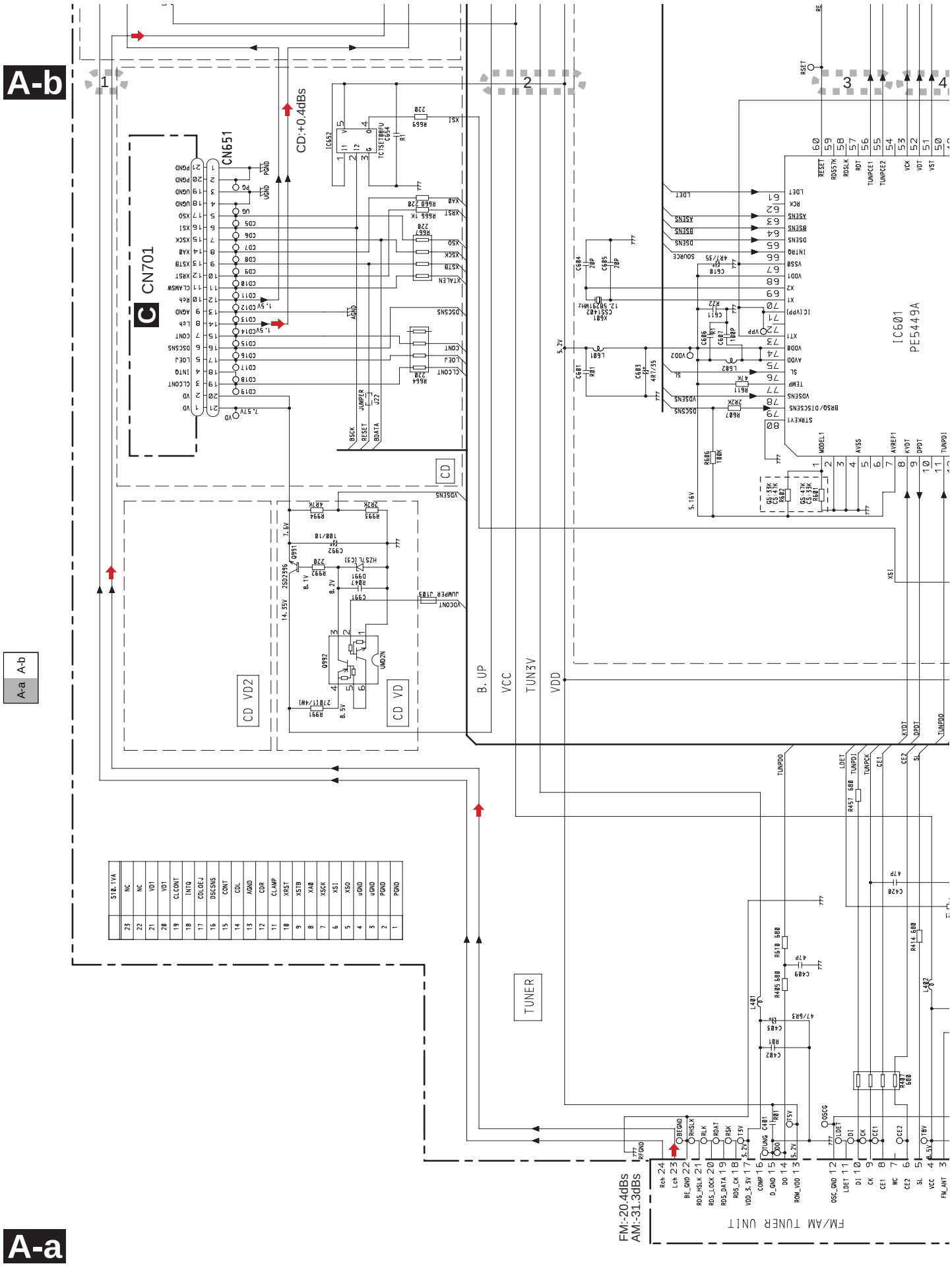
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

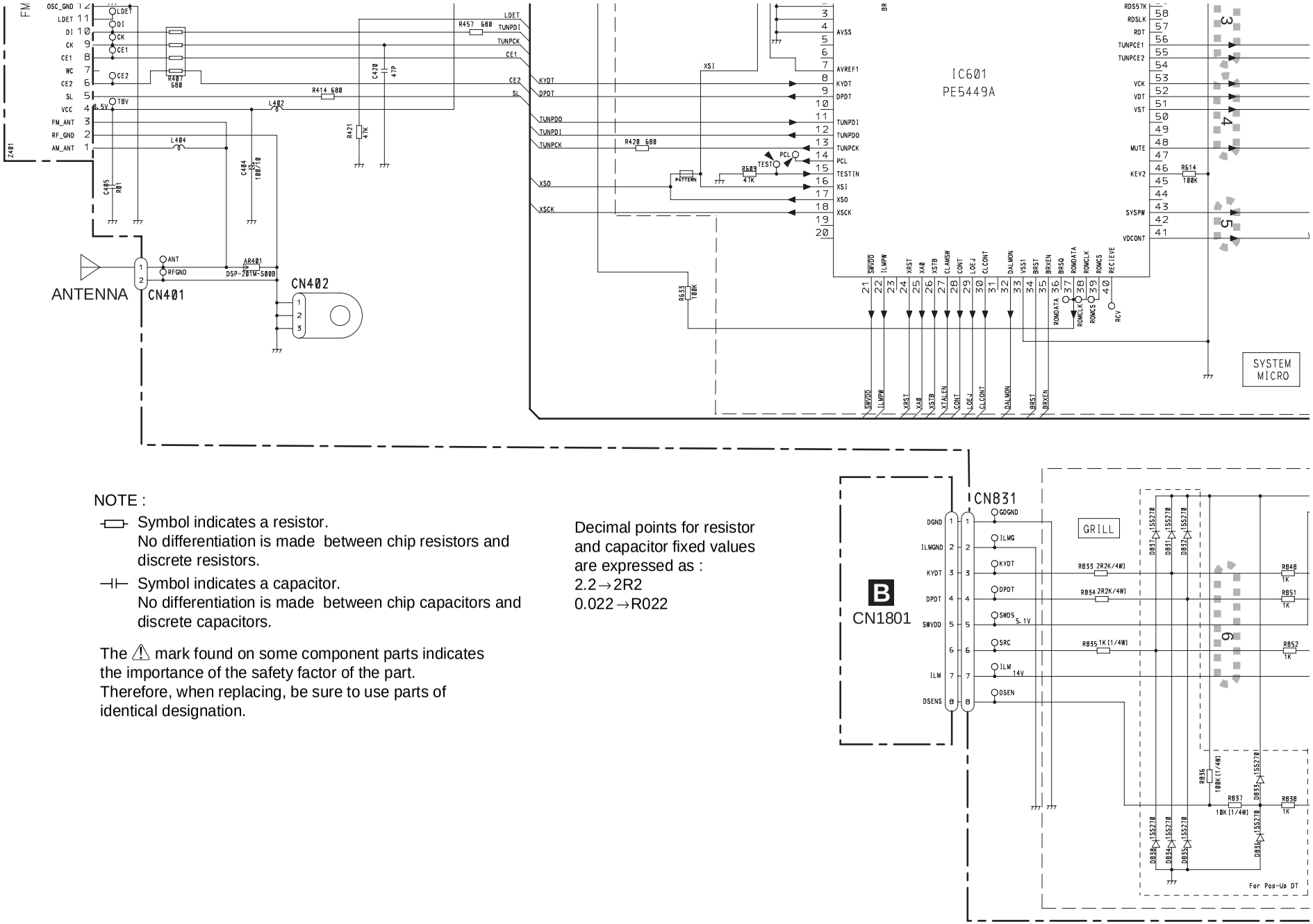
Decimal points for resistor and capacitor fixed values are expressed as :
2.2→2R2
0.022→R022

A-b

A TUNER AMP UNIT




A-b
A-a
CN651
CN701
CD
CD VD2
CD VD
B. UP
VCC
TUN3V
VDD
TUNER
FM/AM TUNER UNIT
IC601
PE5449A
CD:+0.4dBs
FM:-20.4dBs
AM:-31.3dBs

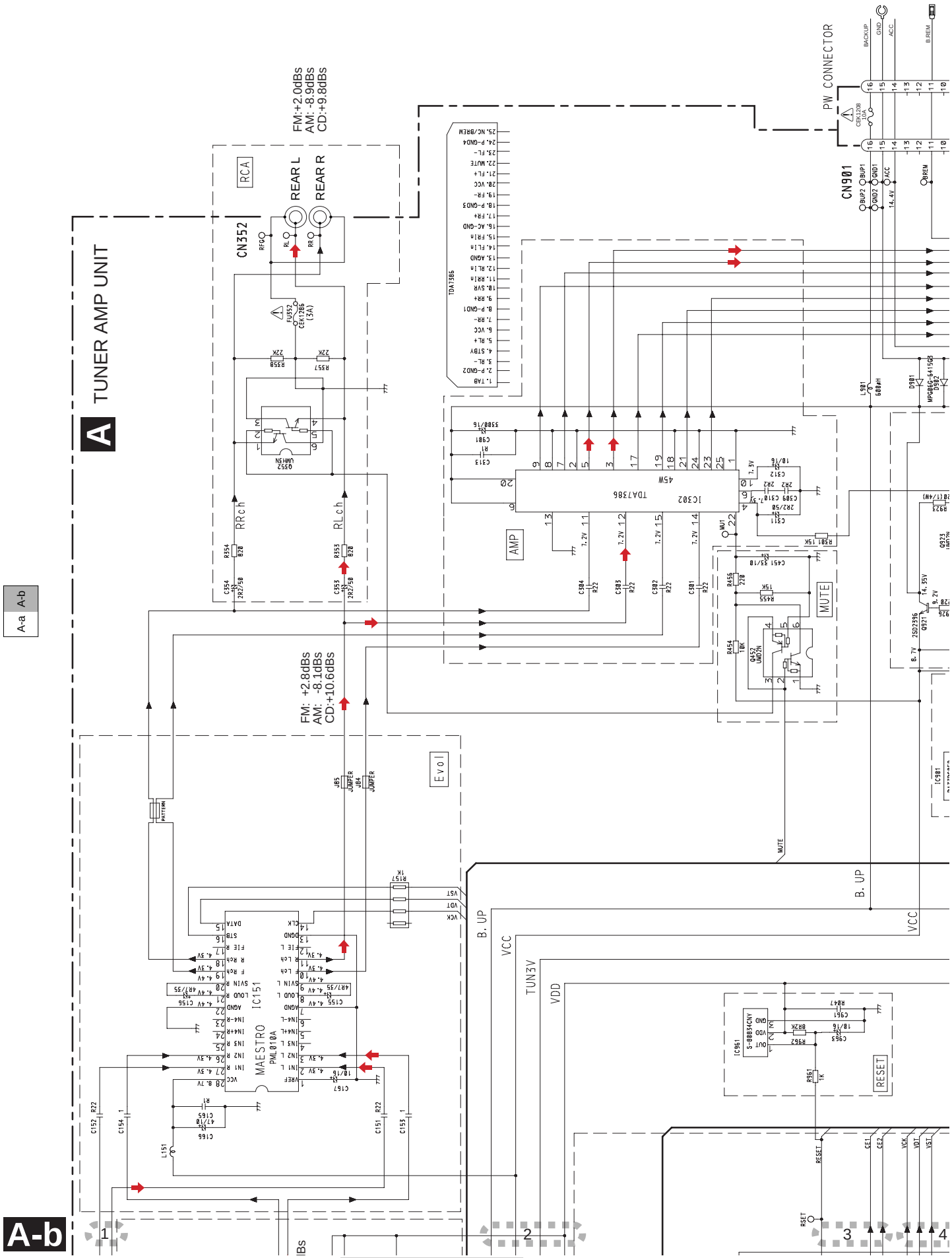


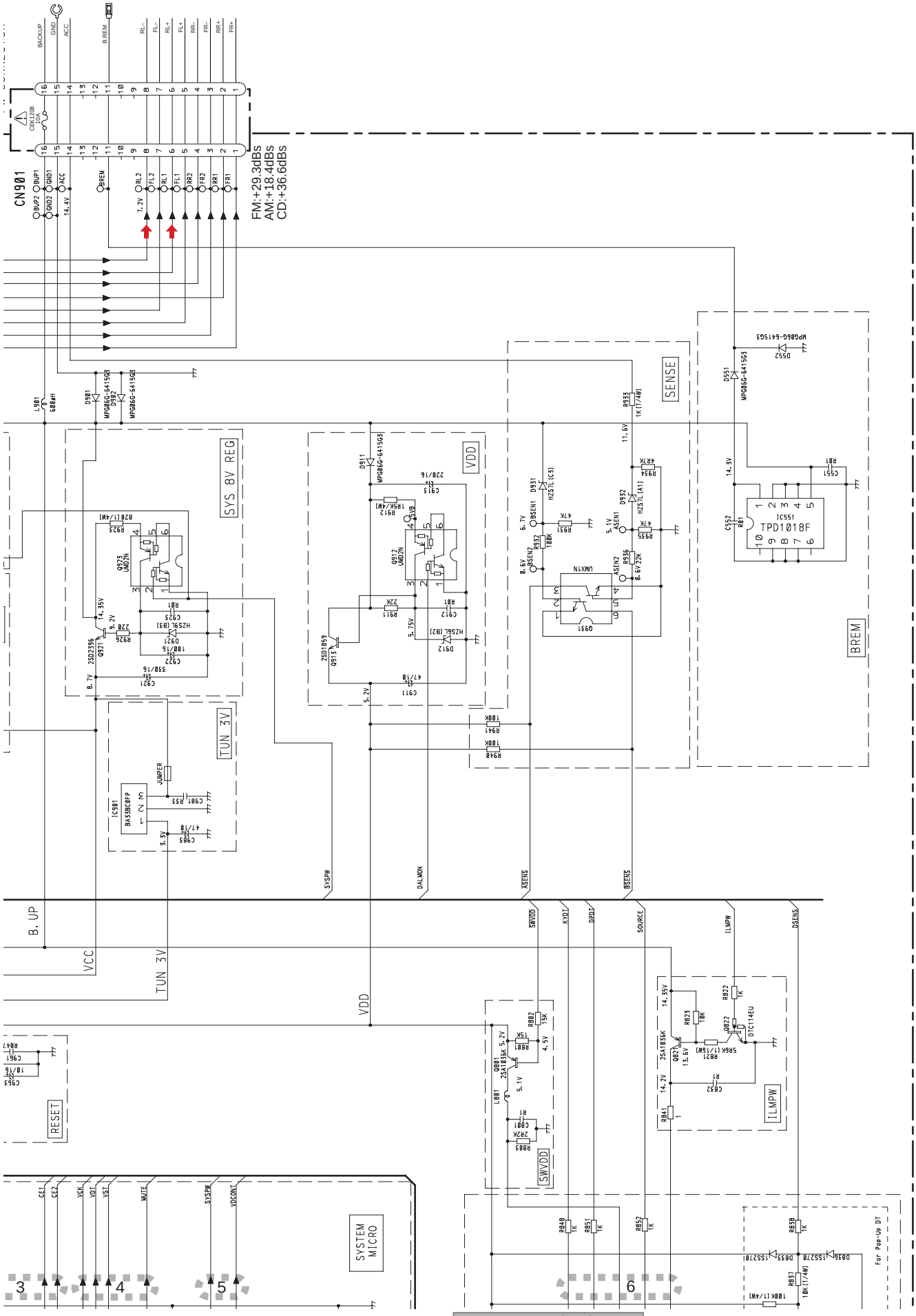
NOTE :

- Symbol indicates a resistor.
  No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor.
  No differentiation is made between chip capacitors and discrete capacitors.

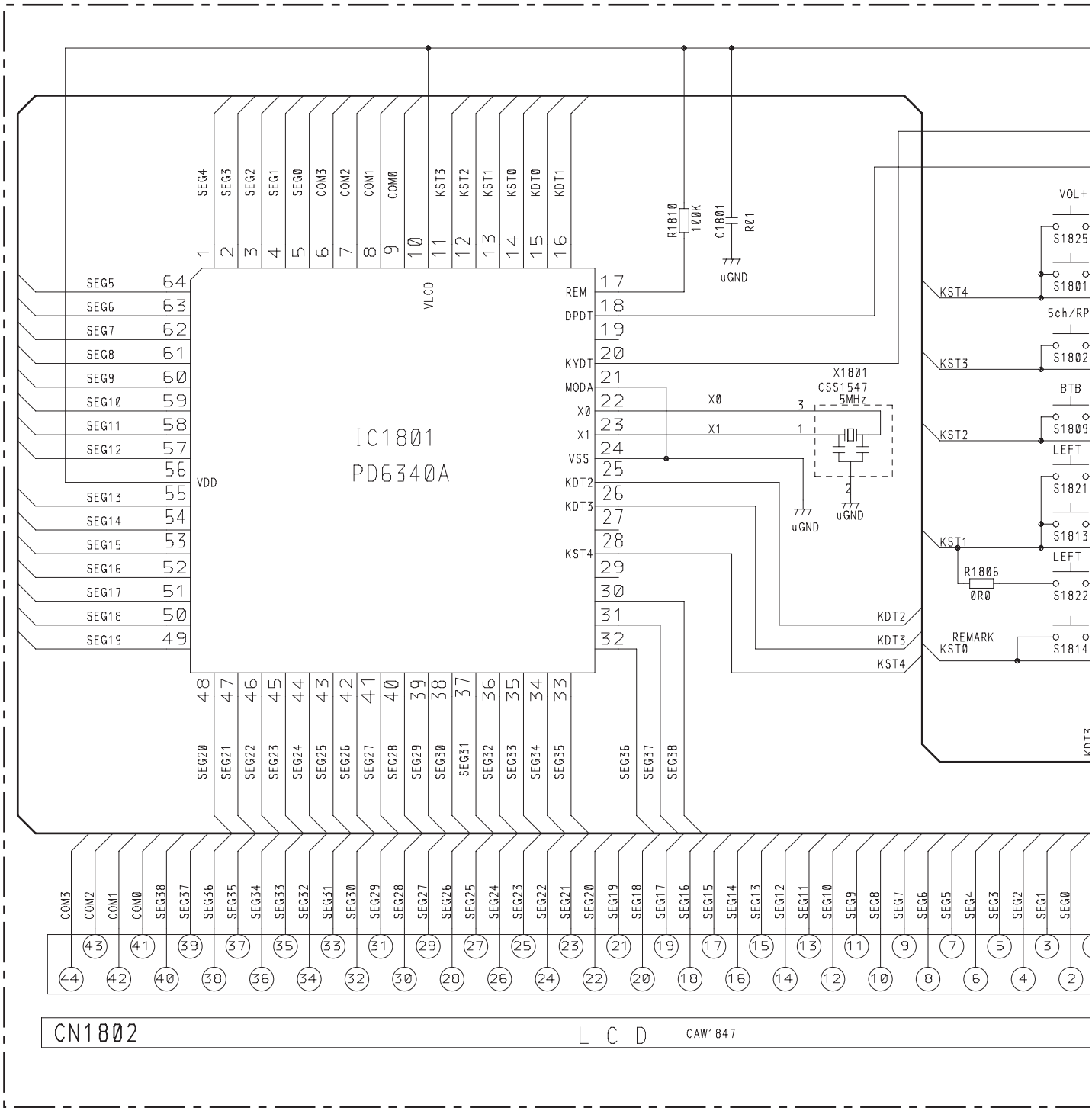
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part.
Therefore, when replacing, be sure to use parts of identical designation.

Decimal points for resistor and capacitor fixed values are expressed as :
2.2→2R2
0.022→R022

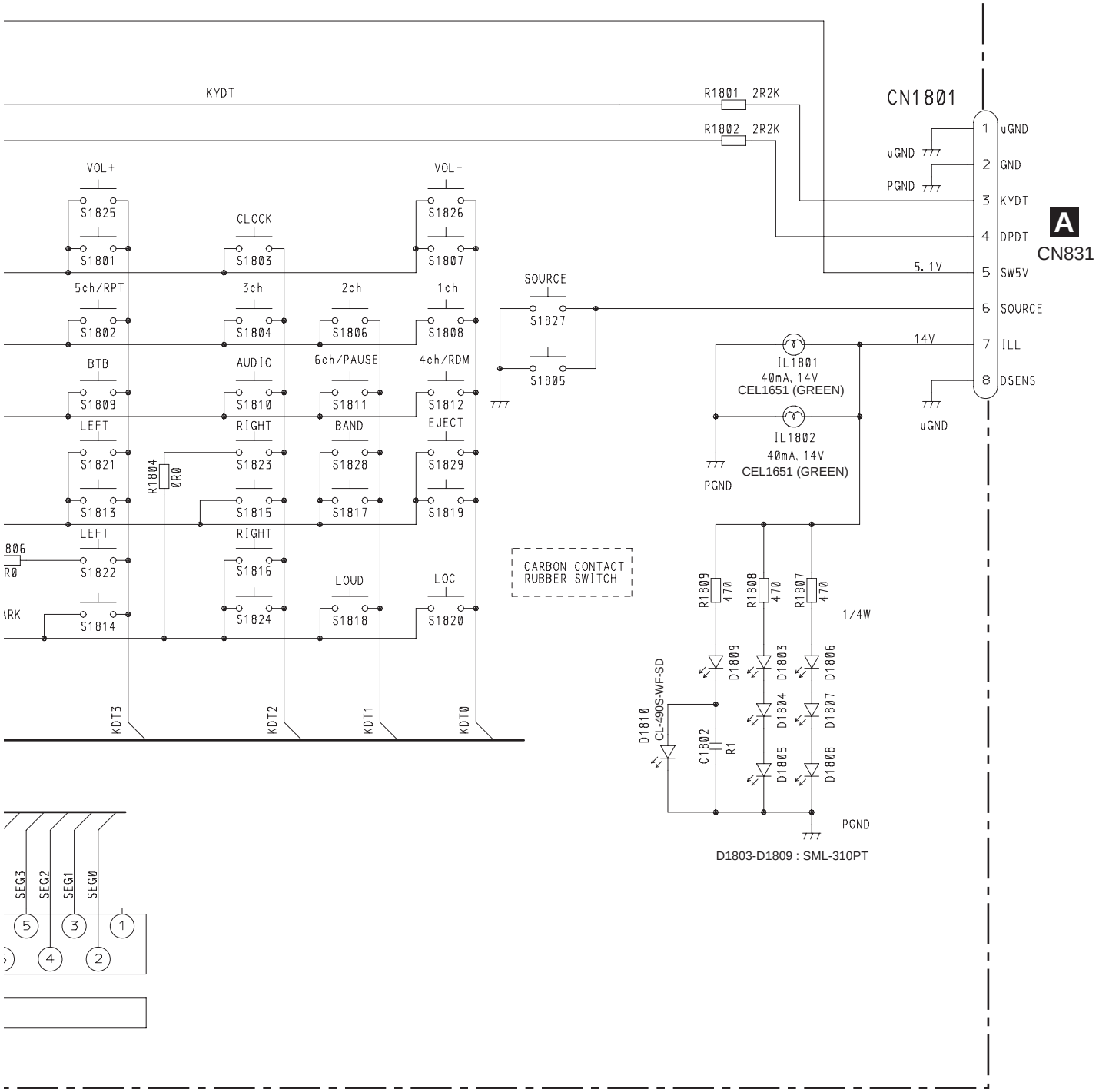

A TUNER AMP UNIT
CN352
RCA
REAR L
REAR R
FM:+2.0dBs
AM: -8.9dBs
CD:+9.8dBs
FM: +2.8dBs
AM: -8.1dBs
CD:+10.6dBs
PW CONNECTOR
CN901
BACKUP
GND
ACC
B.REM
BUP1
BUP2
GND1
GND2
14.4V
IC302
TDA7386
AMP
MUTE
RESET
IC151
MAESTRO
PML010A
Evol
B. UP
VCC
TUN3V
VDD
A-b


CN901
BACKUP
GND
ACC
B.REM
RL-
FL-
RL+
FL+
RR-
FR-
RR+
FR+
BUP2
BUP1
GND2
GND1
14.4V
7.2V
FM:+29.3dBs
AM:+18.4dBs
CD:+36.6dBs
L901
680nH
D901
D902
MPG06G-6415G5
SYS 8V REG
VDD
SENSE
BREM
TUN 3V
RESET
SWVDD
ILMPW
SYSTEM MICRO
IC551
TPD1018F
IC981
BA33BC0FP
JUMPER
Q931
UMX1N
Q912
UN02N
Q921
2SD2396
Q913
2SD1859
Q922
UN02N
Q923
HZS9L (B3)
D912
HZS6L (B2)
D921
HZS9L (B3)
D931
HZS7L (C3)
D932
HZS7L (A1)
D911
MPG06G-6415G3
D551
MPG06G-6415G3
D552
MPG06G-6415G3
VCC
TUN 3V
B. UP
SYSPW
DALMON
ASENS
BSENS
SWVDD
KYDT
DDET
SOURCE
ILMPW
DSENS
CE1
CE2
VCK
VDT
VST
MUTE
SYSPW
VDCONT
For Pop-Up DT
A-b
DEH-1750/XN/GS
21

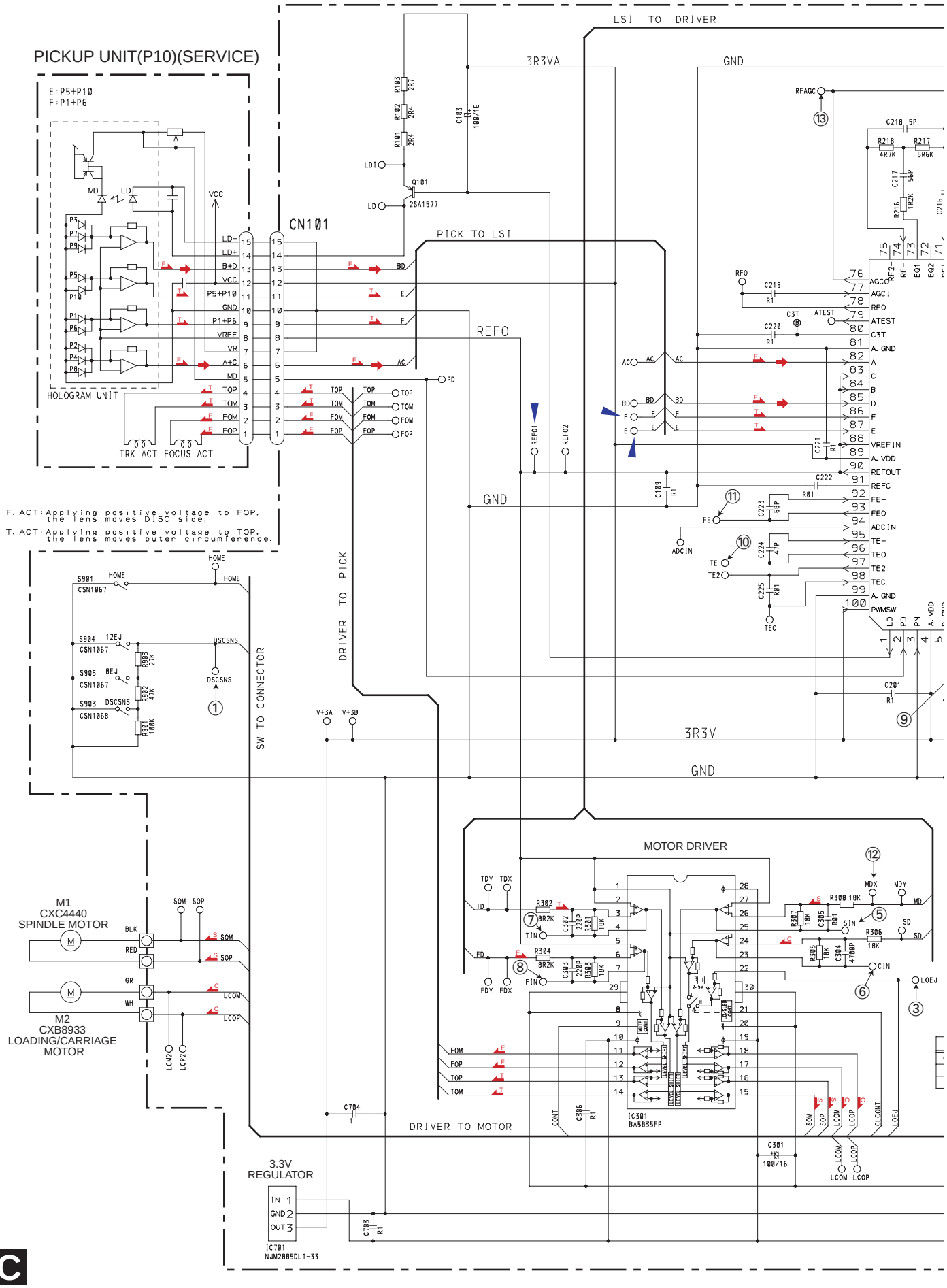
3.3 KEYBOARD UNIT

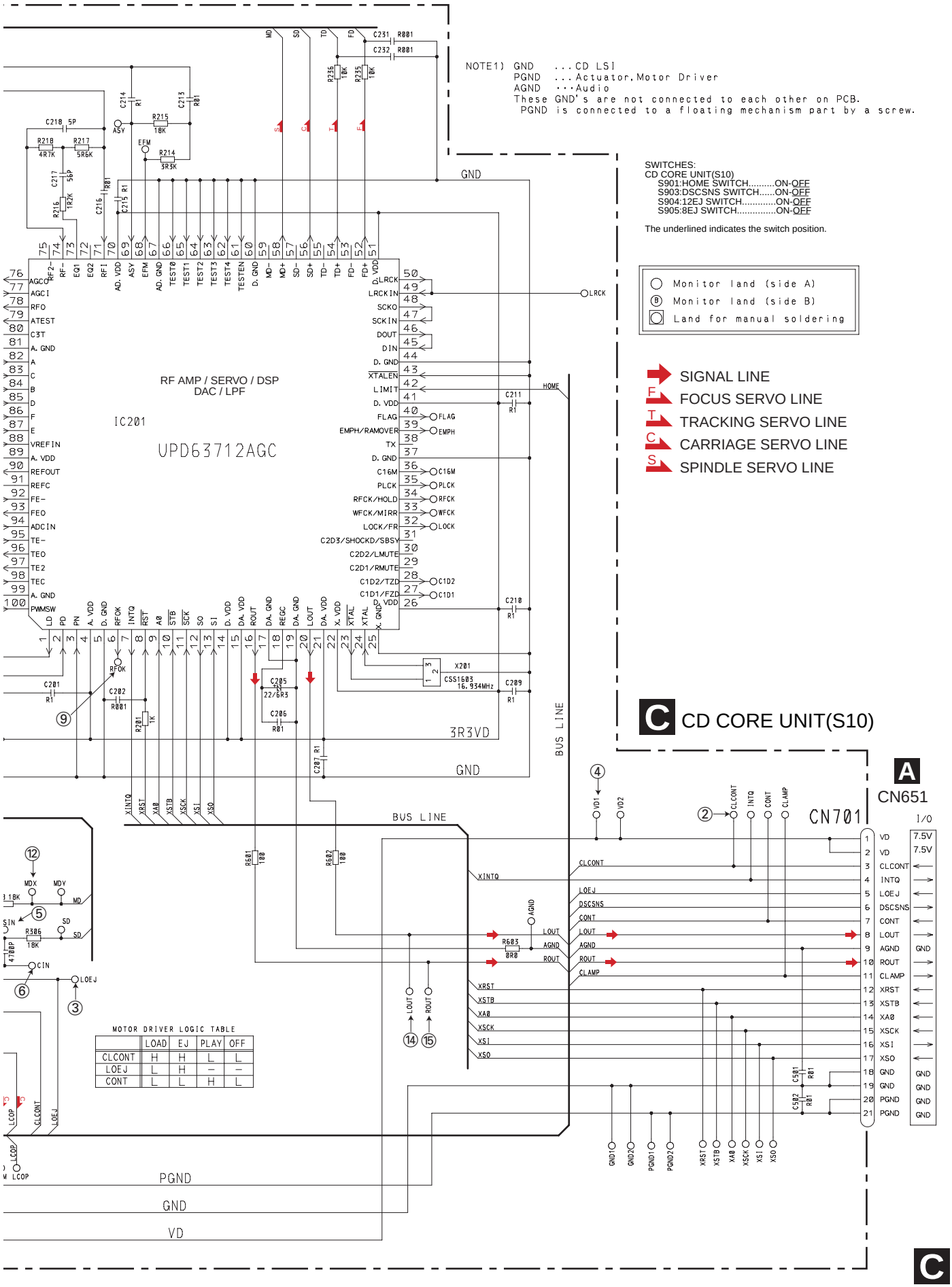


B KEYBOARD UNIT



3.4 CD MECHANISM MODULE



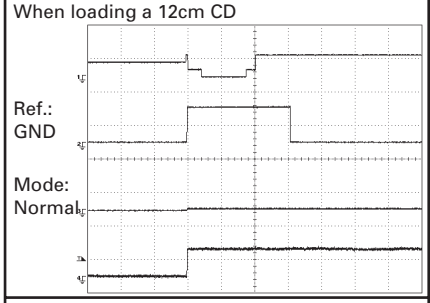

NOTE1) GND ...CD LSI
PGND ...Actuator,Motor Driver
AGND ...Audio
These GND's are not connected to each other on PCB.
PGND is connected to a floating mechanism part by a screw.
SWITCHES:
CD CORE UNIT(S10)
S901:HOME SWITCH.....ON-OFF
S903:DSCSNS SWITCH.....ON-OFF
S904:12EJ SWITCH.....ON-OFF
S905:8EJ SWITCH.....ON-OFF
The underlined indicates the switch position.
Monitor land (side A)
Monitor land (side B)
Land for manual soldering
SIGNAL LINE
FOCUS SERVO LINE
TRACKING SERVO LINE
CARRIAGE SERVO LINE
SPINDLE SERVO LINE
RF AMP / SERVO / DSP
DAC / LPF
IC201
UPD63712AGC
C CD CORE UNIT(S10)
A
CN651
CN701
I/O
BUS LINE
MOTOR DRIVER LOGIC TABLE
LOAD H H L L
EJ H H – –
PLAY L L H L
OFF L H L L
CLCONT
LOEJ
CONT
PGND
GND
VD
3R3VD

● Waveforms

Note : 1. The encircled numbers denote measuring points in the circuit diagram.
2. Reference voltage REFO1(1.65V)

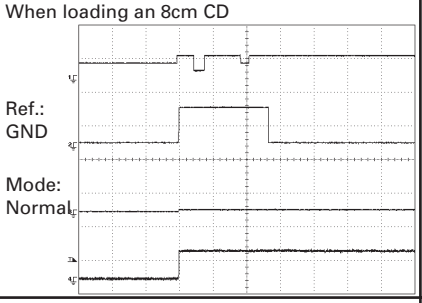
① DSCSNS 5V/div 500ms/div
② CLCONT 5V/div
③ LOEJ 5V/div
④ VD 10V/div

When loading a 12cm CD



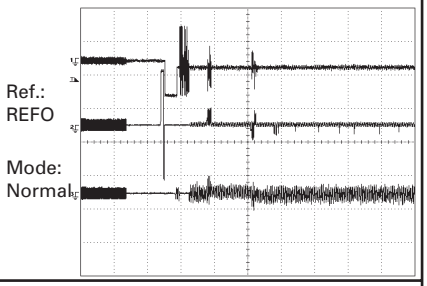
① DSCSNS 5V/div 500ms/div
② CLCONT 5V/div
③ LOEJ 5V/div
④ VD 10V/div

When loading an 8cm CD



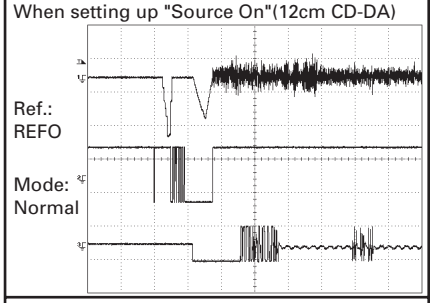
⑤ SIN 1V/div 2s/div
⑥ CIN 500mV/div
⑦ TIN 500mV/div

When setting up after loading a 12cm CD-DA disc



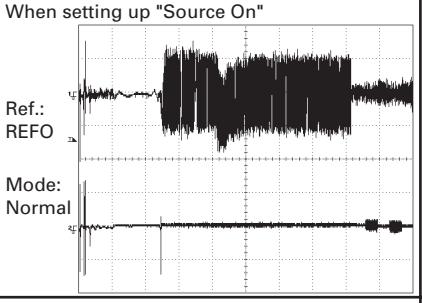
⑧ FIN 200mV/div 500ms/div
⑨ RFOK 2V/div
⑤ SIN 2V/div

When setting up "Source On"(12cm CD-DA)



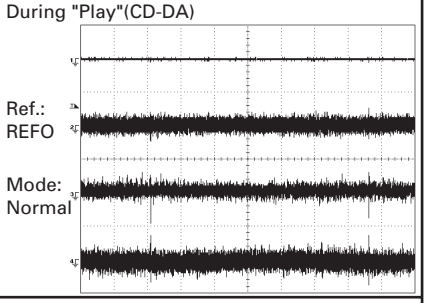
⑩ TE 500mV/div 200ms/div
⑪ FE 500mV/div

When setting up "Source On"



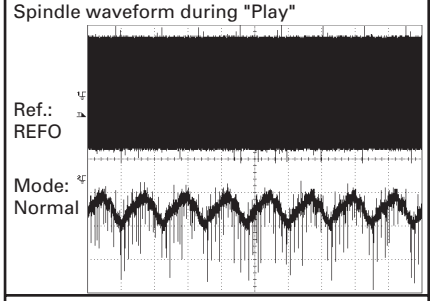
⑪ FE 500mV/div 20ms/div
⑧ FIN 500mV/div
⑩ TE 500mV/div
⑦ TIN 500mV/div

During "Play"(CD-DA)



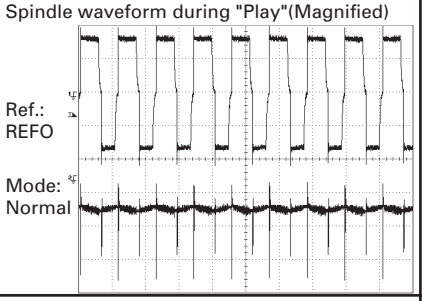
⑫ MDX 500mV/div 5ms/div
⑤ SIN 1V/div

Spindle waveform during "Play"



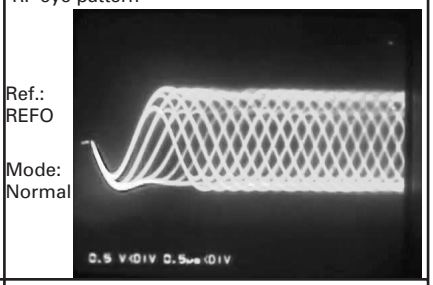
⑫ MDX 500mV/div 5µs/div
⑤ SIN 1V/div

Spindle waveform during "Play"(Magnified)



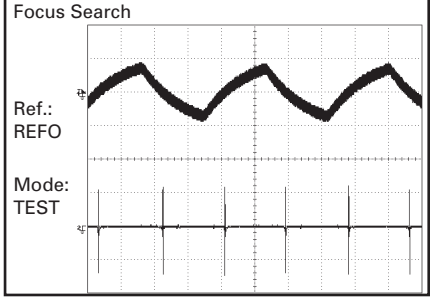
⑬ RFAGC 500mV/div 0.5µs/div

RF eye pattern



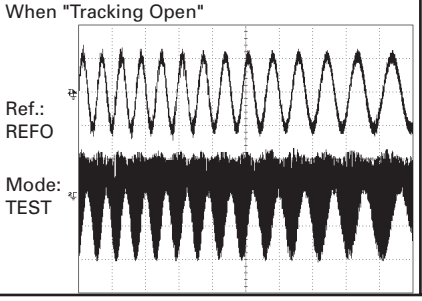
⑧ FIN 500mV/div 200ms/div
⑪ FE 500mV/div

Focus Search



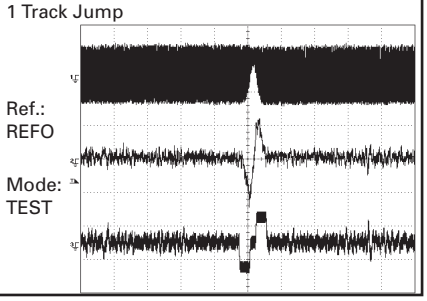
⑩ TE 500mV/div 2ms/div
⑬ RFAGC 500mV/div

When "Tracking Open"



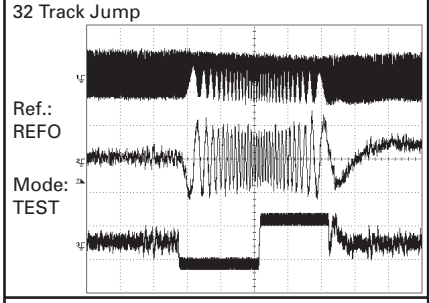
⑬ RFAGC 1V/div 500µs/div
⑩ TE 500mV/div
⑦ TIN 500mV/div

1 Track Jump



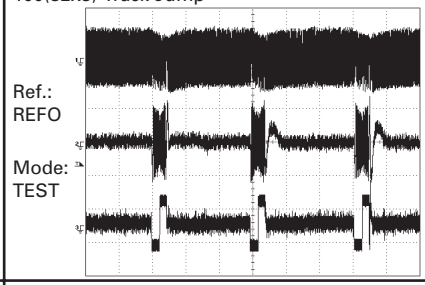
⑬ RFAGC	1V/div	500ms/div
⑩ TE	500mV/div	
⑦ TIN	500mV/div	

32 Track Jump



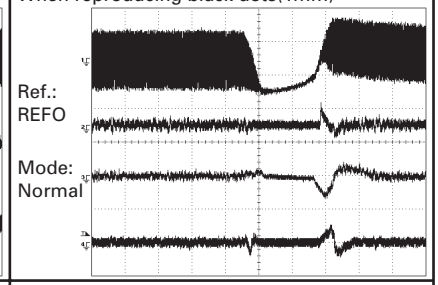
⑬ RFAGC	1V/div	5ms/div
⑩ TE	500mV/div	
⑦ TIN	500mV/div	

100(32x3) Track Jump



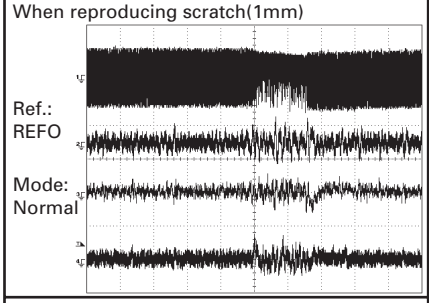
⑬ RFAGC	1V/div	500µs/div
⑦ TIN	1V/div	
⑩ TE	1V/div	
⑧ FIN	1V/div	

When reproducing black dots(1mm)



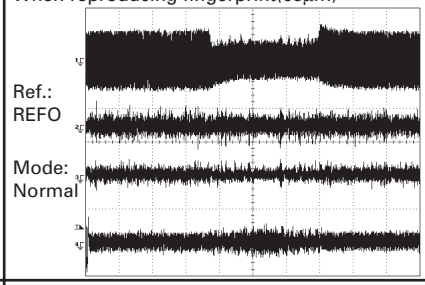
⑬ RFAGC	1V/div	500µs/div
⑩ TE	1V/div	
⑥ CIN	500mV/div	
⑤ SIN	2V/div	

When reproducing scratch(1mm)



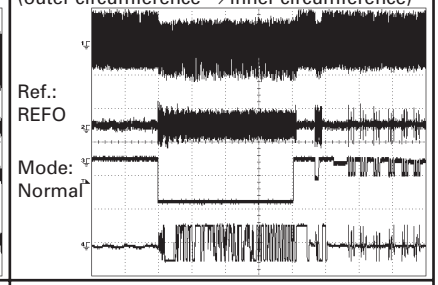
⑬ RFAGC	1V/div	5ms/div
⑩ TE	1V/div	
⑥ CIN	500mV/div	
⑤ SIN	2V/div	

When reproducing fingerprint(65µm)



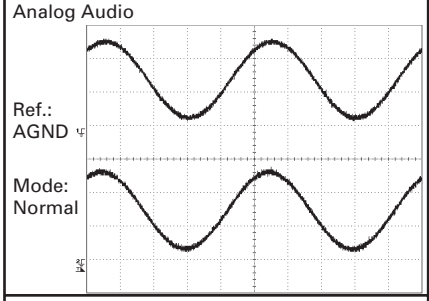
⑬ RFAGC	1V/div	500µs/div
⑩ TE	1V/div	
⑥ CIN	500mV/div	
⑤ SIN	2V/div	

During inside/outside search
(outer circumference → inner circumference)



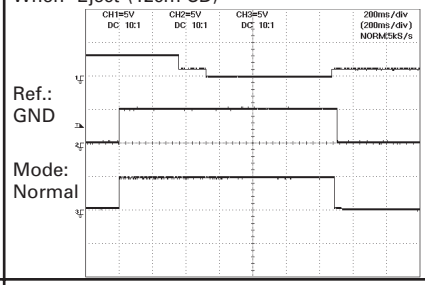
⑭ LOUT	1V/div	200µs/div
⑮ ROUT	1V/div	

Analog Audio



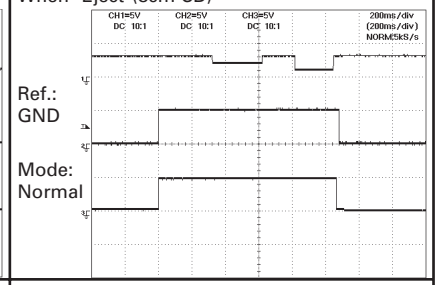
① DSCSNS	5V/div	200ms/div
② CLCONT	5V/div	
③ LOEJ	5V/div	

When "Eject"(12cm CD)



① DSCSNS	5V/div	200ms/div
② CLCONT	5V/div	
③ LOEJ	5V/div	

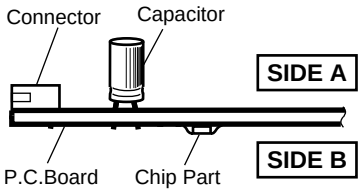
When "Eject"(8cm CD)

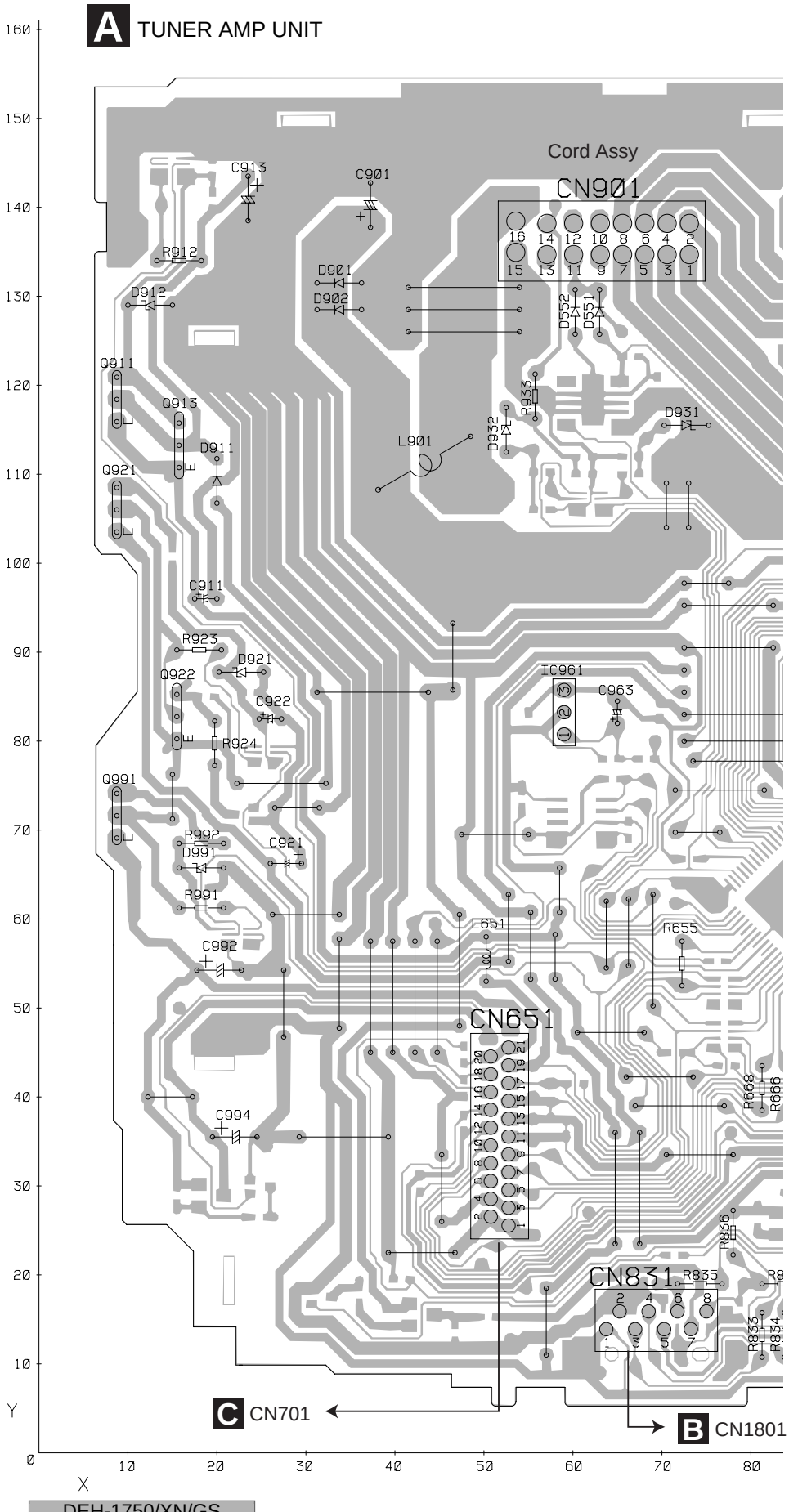


4. PCB CONNECTION DIAGRAM
4.1 TUNER AMP UNIT

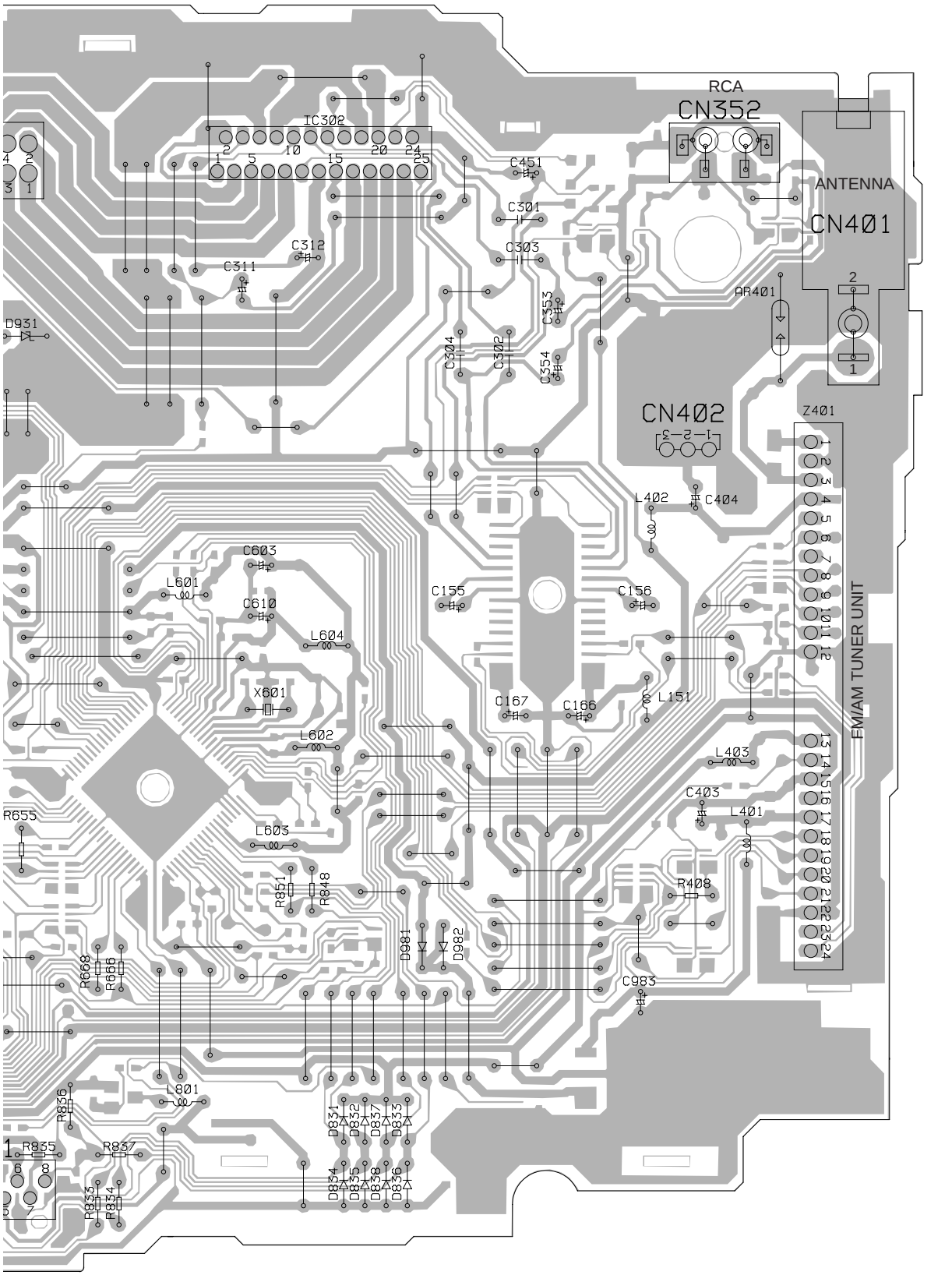
NOTE FOR PCB DIAGRAMS

1. The parts mounted on this PCB include all necessary parts for several destination.
   For further information for respective destinations, be sure to check with the schematic diagram.
2. Viewpoint of PCB diagrams



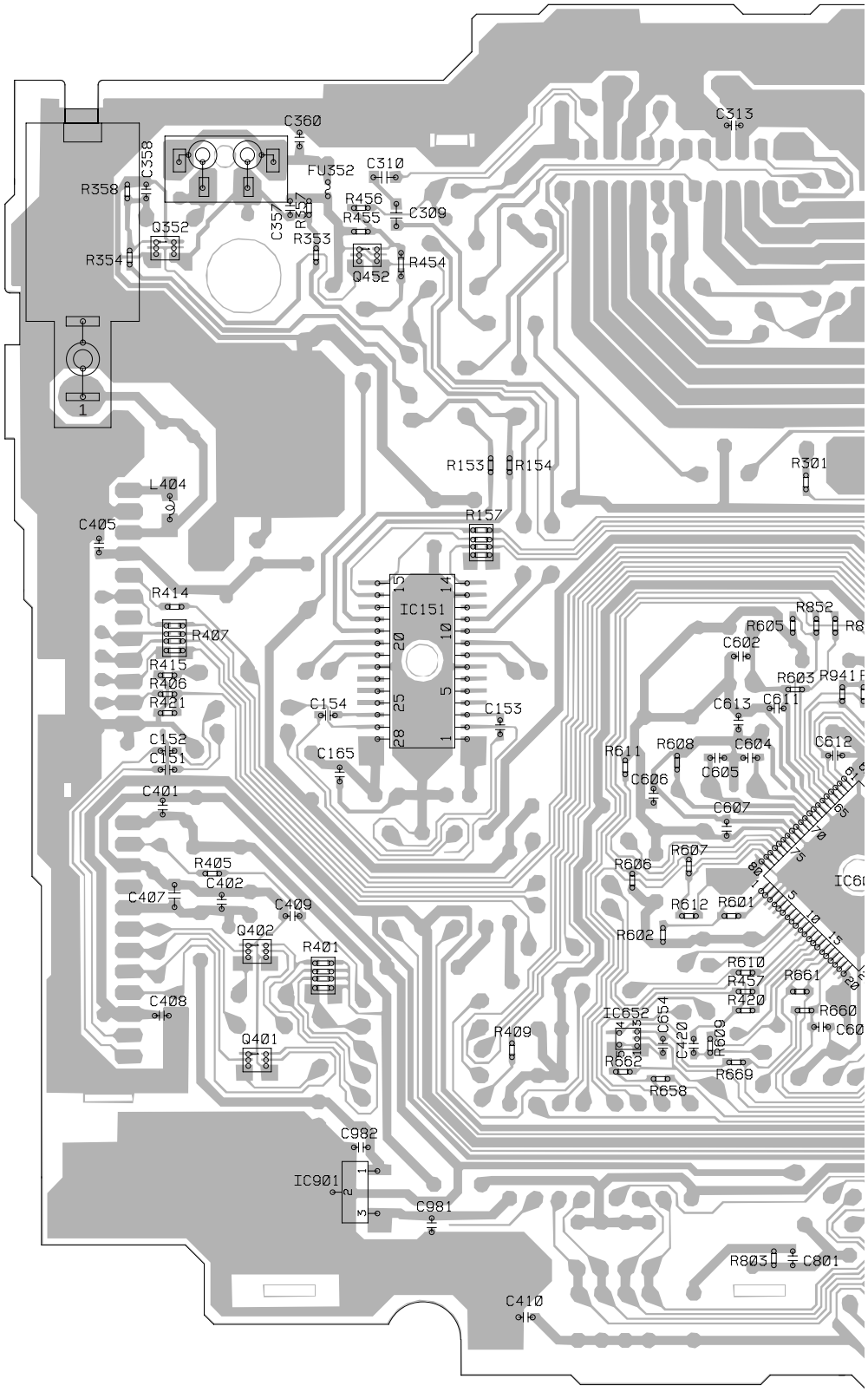


SIDE A

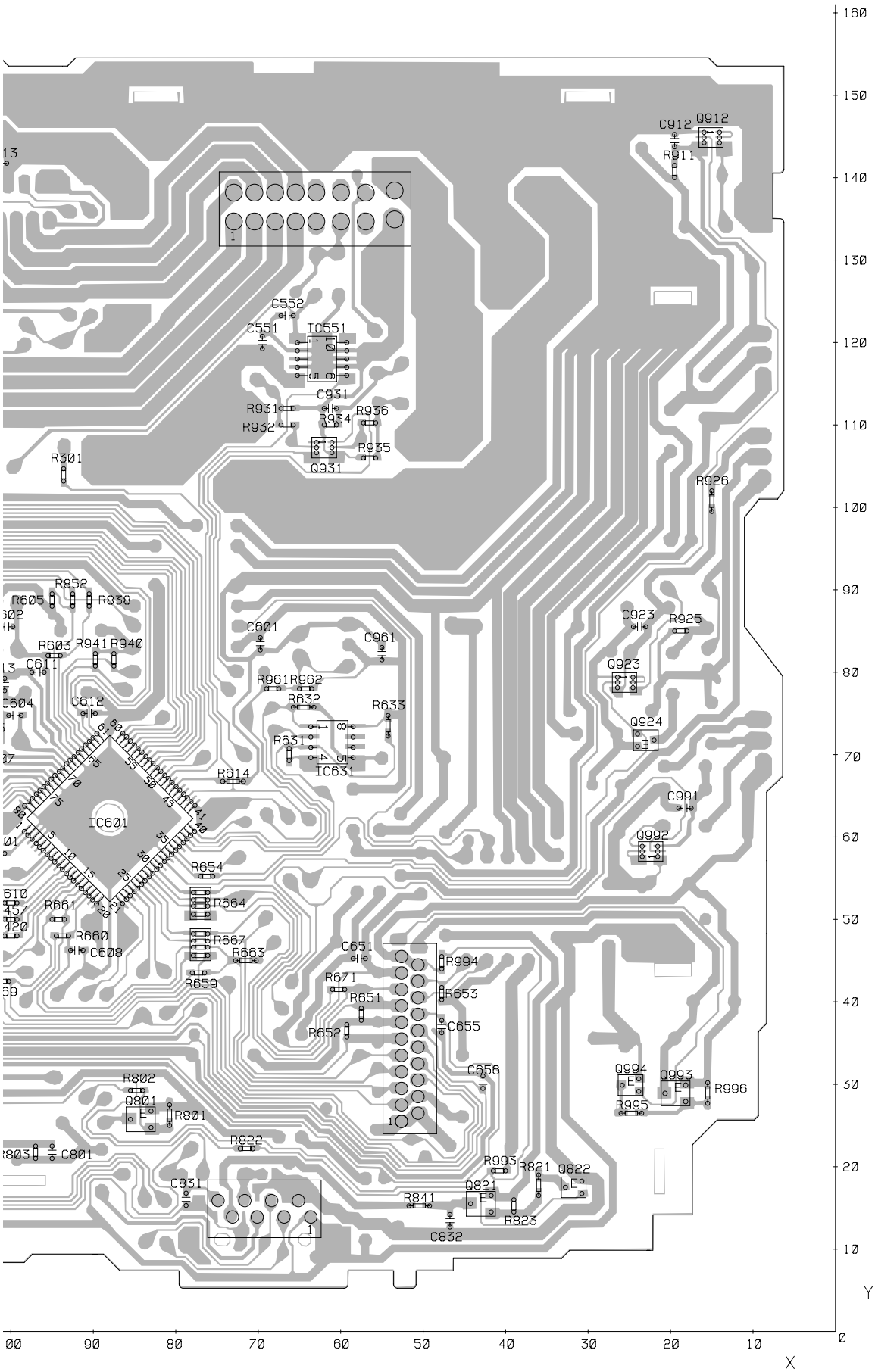


DEH-1750/XN/GS

A TUNER AMP UNIT



SIDE B

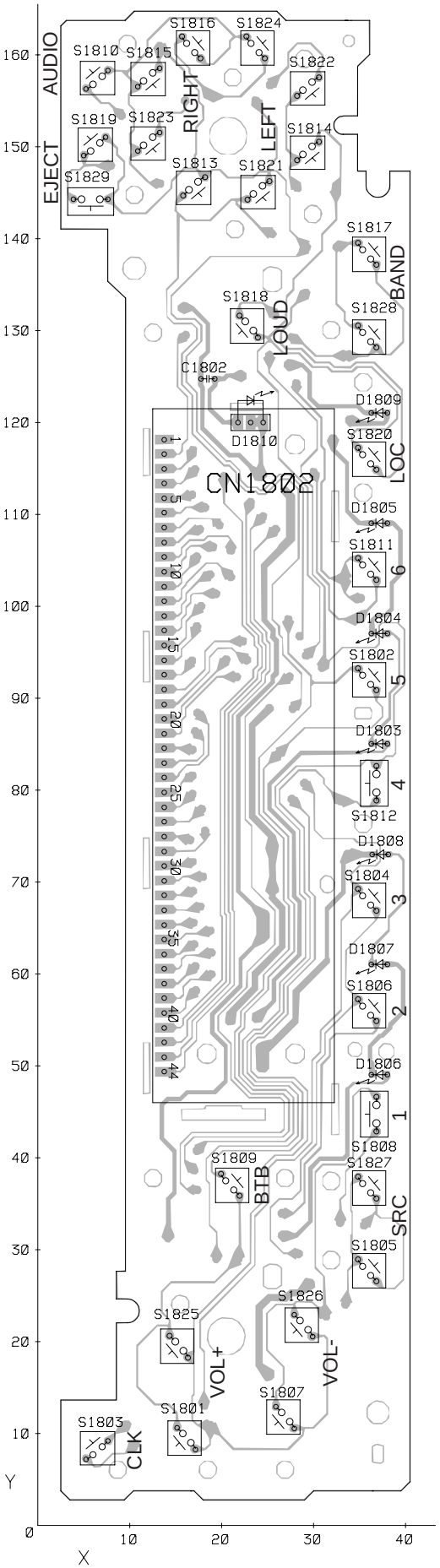


DEH-1750/XN/GS

4.2 KEYBOARD UNIT

B KEYBOARD UNIT

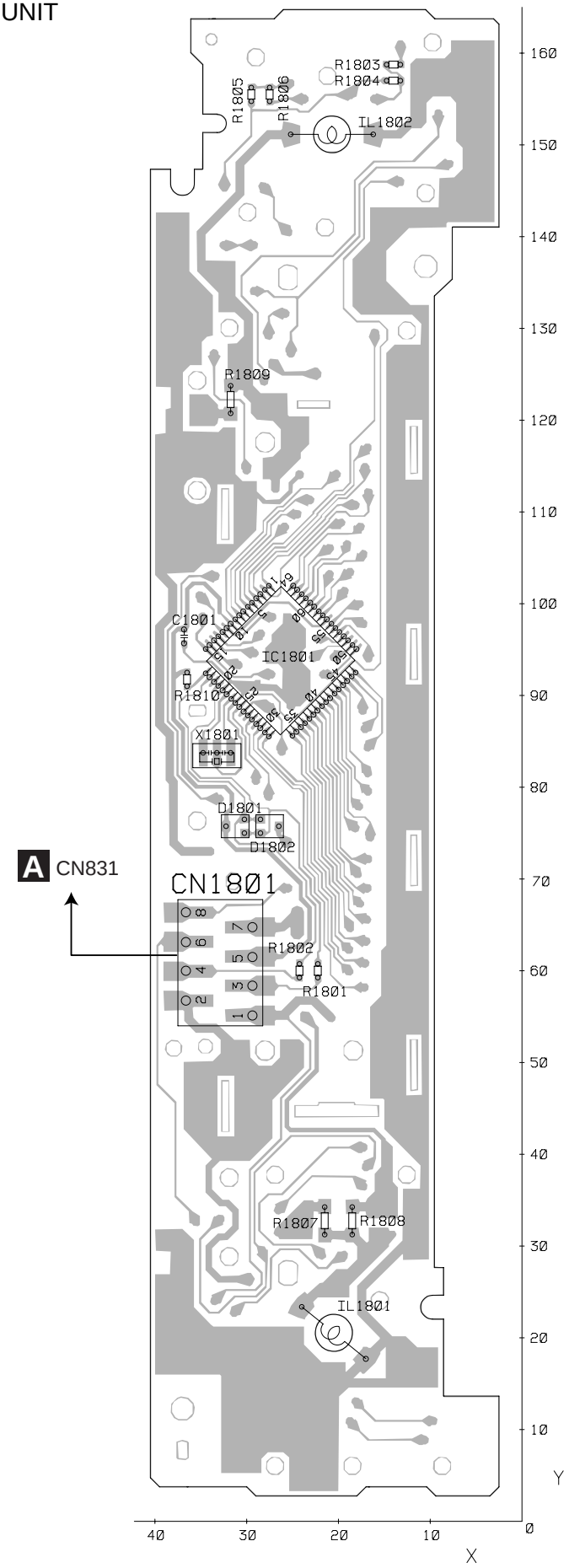
SIDE A



B

B KEYBOARD UNIT

SIDE B

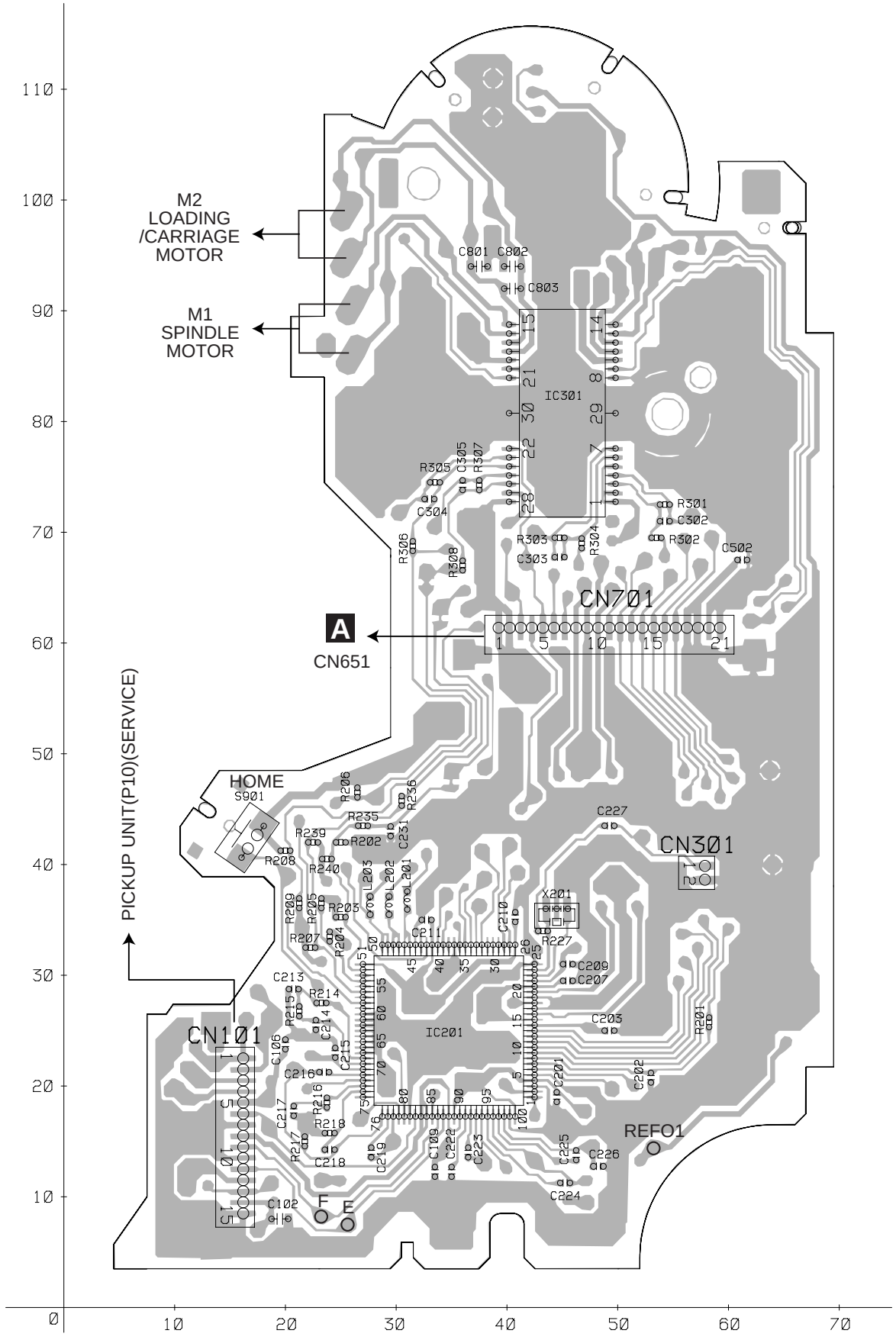


B

4.3 CD CORE UNIT(S10)

C CD CORE UNIT(S10)

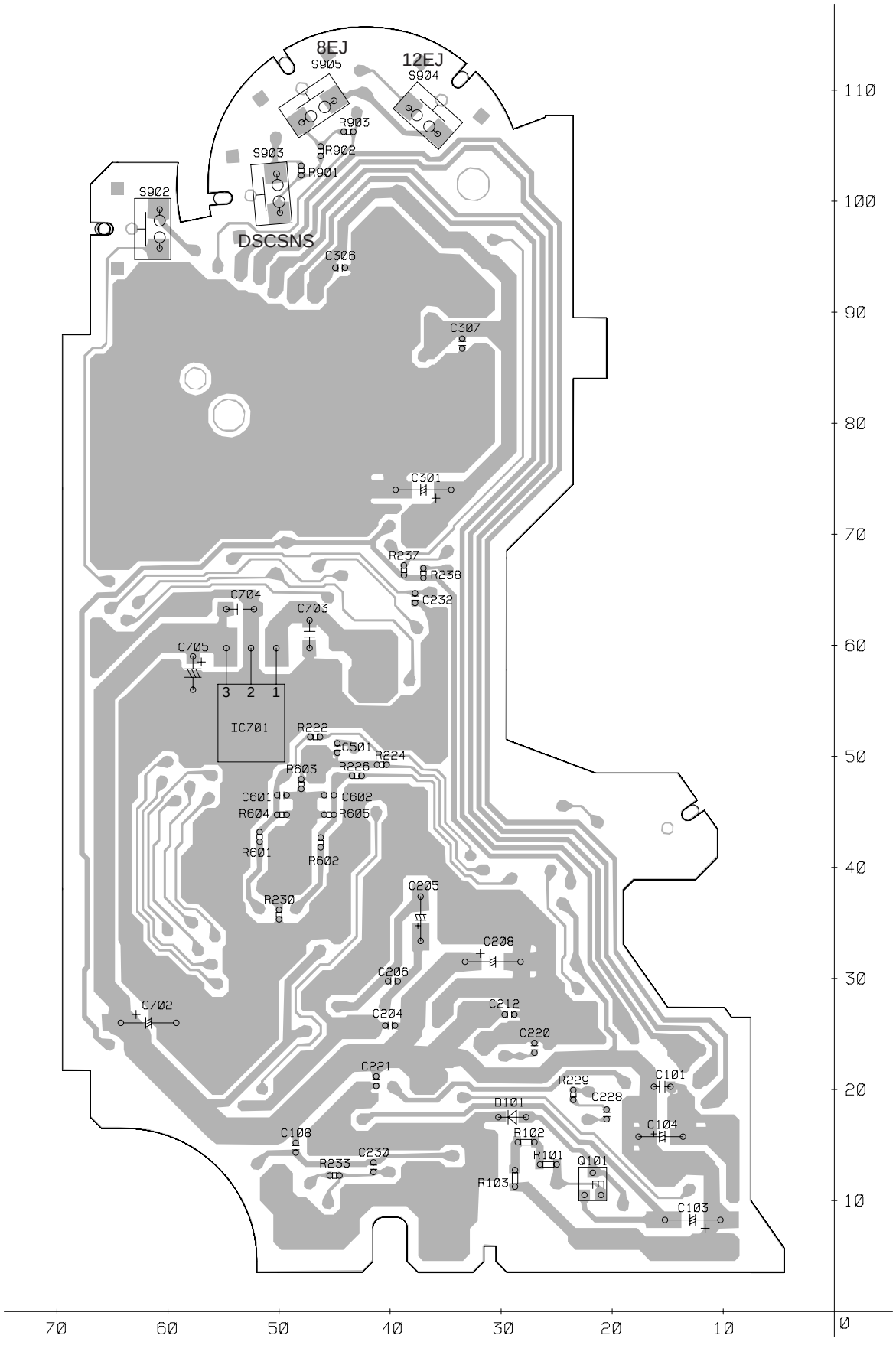
SIDE A



C

C CD CORE UNIT(S10)

SIDE B



5. ELECTRICAL PARTS LIST

NOTE:

- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *The part numbers shown below indicate chip components.*

  Chip Resistor

  RS1/◯S◯◯◯J,RS1/◯◯S◯◯◯J

  Chip Capacitor (except for CQS.....)

  CKS....., CCS....., CSZS.....
- *The ⚠ mark found on some component parts indicatesthe importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

A

Unit Number:CWM9601(DEH-1750)
Unit Number:CWM9605(DEH-1770)
Unit Name:Tuner Amp Unit

MISCELLANEOUS

Circuit Symbol and No.		Part No.
IC 151	(B,134,85) IC	PML010A
IC 302	(A,95,135) IC	TDA7386
IC 551	(B,62,118) IC	TPD1018F
IC 601	(B,88,62) IC	PE5449A
IC 652	(B,113,45) IC	TC7SET08FU
IC 901	(B,144,29) IC	BA33BC0FP
IC 961	(A,59,81) IC	S-80834CNY
Q 352	(B,162,129) Transistor	UMH3N
Q 452	(B,140,128) Transistor	UMD2N
Q 801	(B,84,26) Transistor	2SA1036K
Q 821	(B,43,16) Transistor	2SA1036K
Q 822	(B,32,18) Transistor	DTC114EU
Q 912	(B,15,145) Transistor	UMD2N
Q 913	(A,16,111) Transistor	2SD1859
Q 921	(A,9,104) Transistor	2SD2396
Q 923	(B,26,79) Transistor	UMD2N
Q 931	(B,62,107) Transistor	UMX1N
Q 991	(A,9,69) Transistor	2SD2396
Q 992	(B,23,58) Transistor	UMD2N
D 551	(A,63,126) Diode	MPG06G-6415G3
D 552	(A,60,126) Diode	MPG06G-6415G3
D 831	(A,110,21) Diode	1SS270
D 832	(A,113,21) Diode	1SS270
D 833	(A,118,21) Diode	1SS270
D 834	(A,110,13) Diode	1SS270
D 835	(A,113,13) Diode	1SS270
D 836	(A,118,13) Diode	1SS270
D 837	(A,115,21) Diode	1SS270
D 838	(A,115,13) Diode	1SS270
D 901	(A,36,132) Diode	MPG06G-6415G3
D 902	(A,36,129) Diode	MPG06G-6415G3
D 911	(A,20,107) Diode	MPG06G-6415G3
D 912	(A,15,129) Diode	HZS6L(B2)
D 921	(A,25,88) Diode	HZS9L(B3)
D 931	(A,70,116) Diode	HZS7L(C3)
D 932	(A,53,113) Diode	HZS7L(A1)
D 991	(A,21,66) Diode	HZS7L(C3)

Circuit Symbol and No.		Part No.
L 151	(A,146,70) Inductor	LAU2R2K
L 401	(A,158,58) Inductor	LAU2R2K
L 402	(A,147,95) Inductor	LAU2R2K
L 404	(B,161,101) Inductor	LCTAW4R7J2520
L 601	(A,94,85) Ferri-Inductor	LAU100K
L 602	(A,105,67) Inductor	LAU2R2K
L 801	(A,94,25) Inductor	LAU2R2K
L 901	(A,37,108) Choke Coil 600µH	CTH1280
X 601	(A,104,72) Radiator 12.58291MHz	CSS1402
⚠FU352	(B,144,135) Fuse 3A	CEK1286
AR401	(A,162,110) Surge Protector	DSP-201M-S00B
⚠	Fuse 10A	CEK1208
	FM/AM Tuner Unit	CWE1912

RESISTORS

R 157	(B,128,98)	RAB4C102J
R 301	(B,94,104)	RS1/16S153J
R 353	(B,146,128)	RS1/16S821J
R 354	(B,165,128)	RS1/16S821J
R 357	(B,146,133)	RS1/16S223J
R 358	(B,166,135)	RS1/16S223J
R 405	(B,157,63)	RS1/16S681J
R 407	(B,161,88)	RAB4C681J
R 414	(B,161,91)	RS1/16S681J
R 420	(B,100,48)	RS1/16S681J
R 421	(B,161,80)	RS1/16S473J
R 454	(B,137,127)	RS1/16S103J
R 455	(B,141,131)	RS1/16S153J
R 456	(B,141,133)	RS1/16S221J
R 457	(B,100,50)	RS1/16S681J
R 601	(B,102,58) (DEH-1750)	RS1/16S473J
	(DEH-1770)	RS1/16S333J
R 602	(B,109,56) (DEH-1750)	RS1/16S333J
	(DEH-1770)	RS1/16S473J
R 606	(B,112,62)	RS1/16S104J
R 607	(B,106,63)	RS1/16S222J
R 609	(B,104,44)	RS1/16S473J
R 610	(B,100,52)	RS1/16S681J
R 611	(B,113,74)	RS1/16S473J
R 614	(B,73,67)	RS1/16S104J
R 633	(B,54,74)	RS1/16S104J
R 664	(B,77,52)	RAB4C221J
R 666	(A,84,44)	RD1/4PU102J
R 667	(B,77,47)	RAB4C221J
R 668	(A,81,44)	RD1/4PU221J
R 669	(B,101,43)	RS1/16S221J

Circuit Symbol and No.		Part No.
R 801	(B,81,26)	RS1/16S153J
R 802	(B,85,29)	RS1/16S153J
R 803	(B,97,22)	RS1/16S222J
R 821	(B,36,18)	RS1/16S562J
R 822	(B,71,22)	RS1/16S102J
R 823	(B,39,15)	RS1/16S103J
R 833	(A,81,11)	RD1/4PU222J
R 834	(A,84,11)	RD1/4PU222J
R 835	(A,72,19)	RD1/4PU102J
R 836	(A,78,22)	RD1/4PU104J
R 837	(A,81,19)	RD1/4PU103J
R 838	(B,91,89)	RS1/16S102J
R 841	(B,50,15)	RS1/16S1R0J
R 848	(A,107,48)	RD1/4PU102J
R 851	(A,104,48)	RD1/4PU102J
R 852	(B,93,89)	RS1/16S102J
R 911	(B,20,141)	RS1/16S223J
R 912	(A,13,134)	RD1/4PU152J
R 923	(A,21,90)	RD1/4PU821J
R 926	(B,15,101)	RS1/16S221J
R 931	(B,67,112)	RS1/16S473J
R 932	(B,67,110)	RS1/16S104J
R 933	(A,56,116)	RD1/4PU102J
R 934	(B,61,110)	RS1/16S472J
R 935	(B,57,106)	RS1/16S473J
R 936	(B,57,110)	RS1/16S223J
R 940	(B,88,82)	RS1/16S104J
R 941	(B,90,82)	RS1/16S104J
R 961	(B,68,78)	RS1/16S102J
R 962	(B,64,78)	RS1/16S822J
R 991	(A,21,61)	RD1/4PU271J
R 992	(A,16,69)	RD1/4PU221J
R 993	(B,41,20)	RS1/16S222J
R 994	(B,48,45)	RS1/16S472J

CAPACITORS

C 151	(B,161,74)	CKSRYB224K10
C 152	(B,161,76)	CKSRYB224K10
C 153	(B,126,78)	CKSRYB105K6R3
C 154	(B,144,79)	CKSRYB105K6R3
C 155	(A,124,84)	CEJQ4R7M35
C 156	(A,144,84)	CEJQ4R7M35
C 165	(B,143,73)	CKSRYB104K16
C 166	(A,139,71)	CEJQ470M10
C 167	(A,129,71)	CEJQ100M16
C 301	(A,134,129)	CFTNA224J50
C 302	(A,130,111)	CFTNA224J50
C 303	(A,134,125)	CFTNA224J50
C 304	(A,124,111)	CFTNA224J50
C 309	(B,137,132)	CKSQYB225K10
C 310	(B,138,136)	CKSQYB225K10
C 311	(A,98,122)	CEJQ2R2M50
C 312	(A,105,125)	CEJQ100M16
C 313	(B,101,142)	CKSRYB104K16
C 353	(A,136,120)	CEJQ2R2M50
C 354	(A,136,111)	CEJQ2R2M50
C 401	(B,162,70)	CKSRYB103K50
C 402	(B,156,60)	CKSRYB103K50
C 403	(A,153,58)	CEJQ470M6R3
C 404	(A,152,95)	CEJQ101M10

Circuit Symbol and No.		Part No.
C 405	(B,169,97)	CKSRYB103K50
C 409	(B,148,58)	CCSRCH470J50
C 420	(B,106,44)	CCSRCH470J50
C 451	(A,133,135)	CEJQ330M10
C 551	(B,70,120)	CKSRYB103K50
C 552	(B,67,123)	CKSRYB103K50
C 601	(B,70,83)	CKSRYB103K50
C 603	(A,102,89)	CEJQ4R7M35
C 604	(B,100,75)	CCSRCH200J50
C 605	(B,103,75)	CCSRCH200J50
C 606	(B,110,71)	CKSRYB104K16
C 607	(B,102,67)	CCSRCH101J50
C 610	(A,102,83)	CEJQ4R7M35
C 611	(B,97,80)	CKSRYB224K10
C 654	(B,109,44)	CKSRYB104K16
C 801	(B,95,22)	CKSRYB104K16
C 832	(B,47,13)	CKSRYB104K16
C 901	(A,37,140)	CEAT332M16(P45)
C 911	(A,18,96)	CEJQ470M10
C 912	(B,20,145)	CKSRYB103K50
C 913	(A,24,144)	CEAT221M16
C 921	(A,26,66) 330µF/16V	CCH1326
C 922	(A,25,83)	CEJQ101M16
C 923	(B,24,86)	CKSRYB103K50
C 961	(B,55,82)	CKSRYB473K50
C 963	(A,65,82)	CEJQ100M16
C 981	(B,133,25)	CKSRYB334K10
C 983	(A,145,38)	CEJQ470M10
C 991	(B,18,64)	CKSRYB473K50
C 992	(A,18,54)	CEJQ101M10

B

Unit Number:CWM9622
Unit Name:Keyboard Unit

MISCELLANEOUS

IC 1801	(B,26,94) IC	PD6340A
D 1803	(A,37,85) LED	SML-310PT
D 1804	(A,37,97) LED	SML-310PT
D 1805	(A,37,109) LED	SML-310PT
D 1806	(A,37,49) LED	SML-310PT
D 1807	(A,37,61) LED	SML-310PT
D 1808	(A,37,73) LED	SML-310PT
D 1809	(A,37,121) LED	SML-310PT
D 1810	(A,23,120) LED	CL-490S-WF-SD
X 1801	(B,33,84) Ceramic Resonator 5.00MHz	CSS1547
IL 1801	(B,21,21) Lamp 40mA,14V	CEL1651
IL 1802	(B,21,151) Lamp 40mA,14V	CEL1651
	LCD	CAW1847

RESISTORS

R 1801	(B,22,60)	RS1/16S222J
R 1802	(B,24,60)	RS1/16S222J
R 1804	(B,14,157)	RS1/16S0R0J
R 1806	(B,28,156)	RS1/16S0R0J
R 1807	(B,22,33)	RS1/4SA471J
R 1808	(B,19,33)	RS1/4SA471J
R 1809	(B,32,122)	RS1/4SA471J
R 1810	(B,37,92)	RS1/16S104J

Circuit Symbol and No.		Part No.
CAPACITORS		
C 1801	(B,37,96)	CKSRYB103K50
C 1802	(A,19,125)	CKSRYF104Z25

C

Unit Number:CWX3110
Unit Name:CD Core Unit(S10)

MISCELLANEOUS

IC 201	(A,35,25)	IC	UPD63712AGC
IC 301	(A,45,81)	IC	BA5835FP
IC 701	(B,53,56)	IC	NJM2885DL1-33
Q 101	(B,22,12)	Transistor	2SA1577
X 201	(A,45,36)	Ceramic Resonator 16.934MHz	CSS1603
S 901	(A,15,44)	Switch(HOME)	CSN1067
S 903	(B,53,101)	Switch(DSCSNS)	CSN1068
S 904	(B,35,109)	Switch(12EJ)	CSN1067
S 905	(B,48,110)	Switch(8EJ)	CSN1067

RESISTORS

R 101	(B,26,13)	RS1/10SR2R4J
R 102	(B,28,15)	RS1/10SR2R4J
R 103	(B,29,12)	RS1/10SR2R7J
R 201	(A,58,26)	RS1/16SS102J
R 214	(A,23,28)	RS1/16SS332J
R 215	(A,21,27)	RS1/16SS183J
R 216	(A,24,19)	RS1/16SS122J
R 217	(A,22,15)	RS1/16SS562J
R 218	(A,24,16)	RS1/16SS472J
R 235	(A,27,44)	RS1/16SS103J
R 236	(A,31,46)	RS1/16SS103J
R 301	(A,54,73)	RS1/16SS183J
R 302	(A,54,70)	RS1/16SS822J
R 303	(A,45,70)	RS1/16SS183J
R 304	(A,47,69)	RS1/16SS822J
R 305	(A,34,75)	RS1/16SS183J
R 306	(A,32,69)	RS1/16SS183J
R 307	(A,38,74)	RS1/16SS183J
R 308	(A,36,67)	RS1/16SS183J
R 601	(B,52,43)	RS1/16SS101J
R 602	(B,46,42)	RS1/16SS101J
R 603	(B,48,48)	RS1/16SS0R0J
R 901	(B,48,103)	RS1/16SS104J
R 902	(B,46,105)	RS1/16SS473J
R 903	(B,44,106)	RS1/16SS273J

CAPACITORS

C 103	(B,13,8) 100µF/16V	CCH1504
C 109	(A,34,12)	CKSSYB104K10
C 201	(A,45,19)	CKSSYB104K10
C 202	(A,53,21)	CKSSYB102K50
C 205	(B,37,36) 22µF/6.3V	CCH1507
C 206	(B,40,30)	CKSSYB103K16
C 207	(A,46,30)	CKSSYB104K10
C 209	(A,46,31)	CKSSYB104K10
C 210	(A,41,35)	CKSSYB104K10
C 211	(A,33,35)	CKSSYB104K10
C 213	(A,21,29)	CKSSYB103K16
C 214	(A,23,26)	CKSSYB104K10
C 215	(A,25,23)	CKSSYB104K10
C 216	(A,24,21)	CKSSYB103K16
C 217	(A,21,18)	CCSSCH560J50
C 218	(A,24,14)	CCSSCH5R0C50
C 219	(A,28,14)	CKSSYB104K10
C 220	(B,27,24)	CKSSYB104K10
C 221	(B,41,21)	CKSSYB104K10
C 222	(A,35,12)	CKSSYB103K16
C 223	(A,37,14)	CCSSCH680J50
C 224	(A,45,11)	CCSSCH470J50
C 225	(A,46,14)	CKSSYB103K16
C 231	(A,30,43)	CKSSYB102K50
C 232	(B,38,64)	CKSSYB102K50
C 301	(B,37,74) 100µF/16V	CCH1504
C 302	(A,54,71)	CKSSYB221K50
C 303	(A,45,68)	CKSSYB221K50
C 304	(A,33,73)	CKSSYB472K25
C 305	(A,36,74)	CKSSYB103K16
C 306	(B,45,94)	CKSSYB104K10
C 501	(B,45,51)	CKSSYB103K16
C 502	(A,61,68)	CKSSYB103K16
C 703	(B,47,61)	CKSQYB104K16
C 704	(B,54,63)	CKSQYB105K10

Miscellaneous Parts List

	Pickup Unit(P10)(Service)	CXX1641
M 1	Motor Unit(SPINDLE)	CXC4440
M 2	Motor Unit(LOADING/CARRIAGE)	CXB8933

6. ADJUSTMENT

6.1 CD ADJUSTMENT

1) Cautions on adjustments

• In this product the single voltage (3.3V) is used for the regulator. The reference voltage is the REFO1 (1.65V) instead of the GND.
If you should mistakenly short the REFO1 with the GND during adjustment, accurate voltage will not be obtained, and the servo's misoperation will apply excessive shock to the pickup. To avoid such problems:
a. Do not mix up the REFO1 with the GND when connecting the (-) probe of measuring instruments. Especially on an oscilloscope, avoid connecting the (-) probe for CH1 to the GND.
b. In many cases, measuring instruments have the same potential as that for the (-) probe. Be sure to set the measuring instruments to the floating state.
c. If you have mistakenly connected the REFO1 to the GND, turn off the regulator or the power immediately.

• Before mounting and removing filters or leads for adjustment, be sure to turn off the regulator.

• For stable circuit operation, keep the mechanism operating for about one minute or more after the regulator is turned on.

• In the test mode, any software protections will not work. Avoid applying any mechanical or electrical shock to the mechanism during adjustment.

• The RFI and RFO signals with a wide frequency range are easy to oscillate. When observing the signals, insert a resistor of 1k ohms in series.

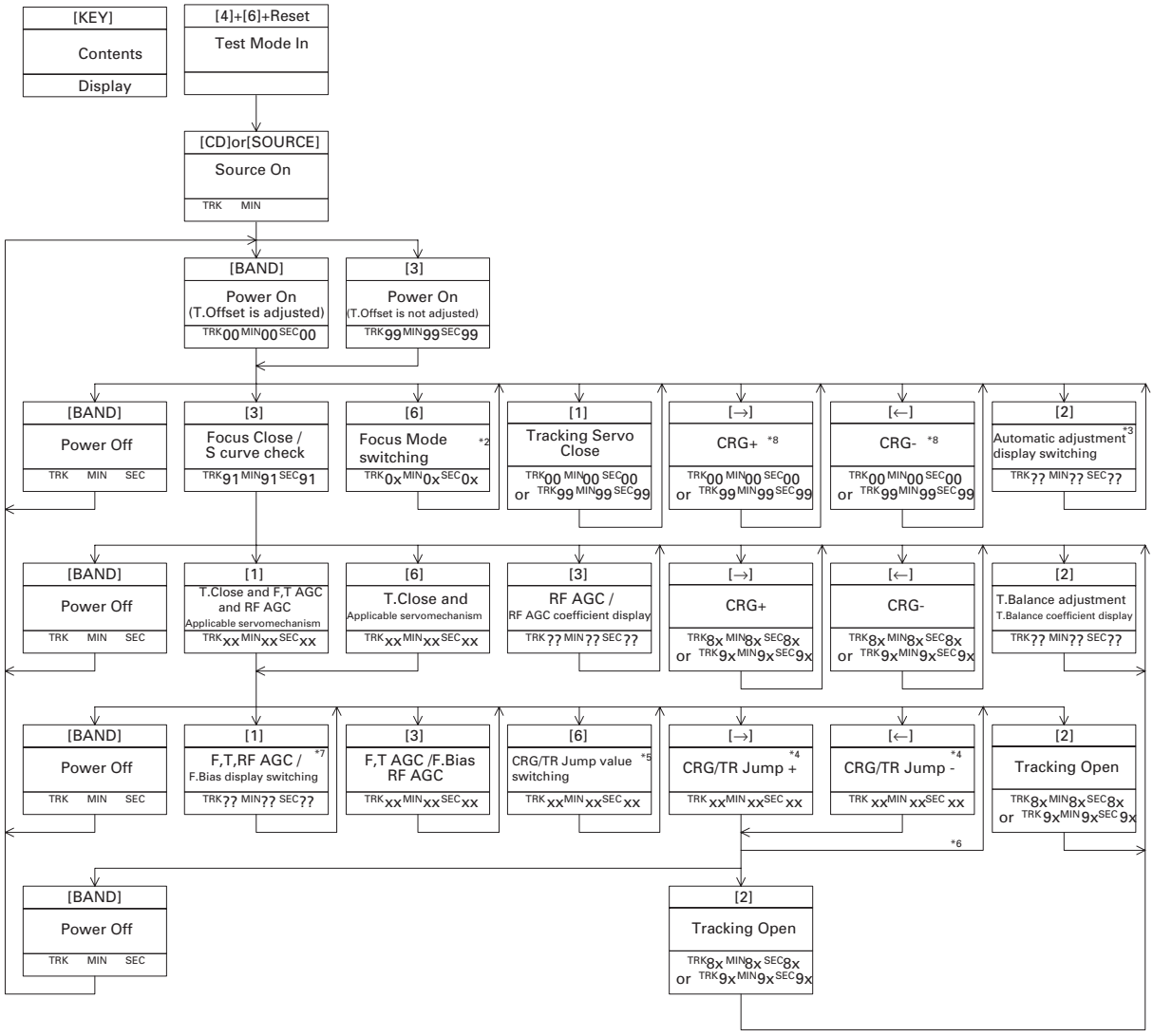
• The load and eject operation is not guarantied with the mechanism upside down. If the mechanism is blocked due to mistaken eject operation, reset the product or turn off and on the ACC to restore it.

2) Test mode

This mode is used to adjust the CD mechanism module.
• To enter the test mode.
While pressing the 4 and 6 keys at the same time, reset.
• To exit from the test mode.
Turn off the ACC and back up.

Notes:
a. During ejection, do not press any other keys than the EJECT key until the loaded disc is ejected.
b. If you have pressed the (→) key or (←) key during focus search, turn off the power immediately to protect the actuator from damage caused by the lens stuck.
c. For the TR jump modes except 100TR, the track jump operation will continue even if the key is released.
d. For the CRG move and 100TR jump modes, the tracking loop will be closed at the same time when the key is released.
e. When the power is turned off and on, the jump mode is reset to the single TR (91), the RF amp gain is set to 0dB, and the auto-adjustment values are reset to the default settings.

● Flow Chart



*1) TYP (TRK MIN SEC) → -12dB (TRK 12 MIN 12 SEC 12)

*2) Focus Close (TRK 00 MIN 00 SEC 00 / TRK 99 MIN 99 SEC 99) → S.Curve (TRK 01 MIN 01 SEC 01) → F EQ measurement setting (TRK 02 MIN 02 SEC 02)

*3) F.Offset Display → RF.Offset Display → T.Offset Display

*4) 1TR/32TR/100TR

*5) Single TR → 32TR → 100TR → CRG Move
9x(8x) : 91(81) 92(82) 93(83) 94(84)

*6) Only at the time of CRG Move or 100TR Jump

*7) TRK/MIN/SEC → F.AGC → T.AGC Gain → F.bias → RF AGC

*8) CRG motor voltage = 2[V]

[Key]	Operation
	Test Mode
[BAND]	Power On / Off
[→]	CRG + / TR Jump + (Direction of the external surface)
[←]	CRG - / TR Jump - (Direction of the internal surface)
[1]	CLS and AGC and Applicable servomechanism / AGC, AGC display switching
[2]	RF Gain switching / Offset adjustment display / T.Balance adjustment / T.Open
[3]	Close, S.Curve / Rough Servo and RF AGC / F, T, RF AGC
-	SPDL 1X / 2X switching (Double-speed compatibility only)
-	Gop measurement
[6]	Forcus Mode switching / Tracking Close / CRG, TR Jump switching

6.2 CHECKING THE GRATING AFTER CHANGING THE PICKUP UNIT

• **Note :**
The grating angle of the PU unit cannot be adjusted after the PU unit is changed. The PU unit in the CD mechanism module is adjusted on the production line to match the CD mechanism module and is thus the best adjusted PU unit for the CD mechanism module. Changing the PU unit is thus best considered as a last resort. However, if the PU unit must be changed, the grating should be checked using the procedure below.

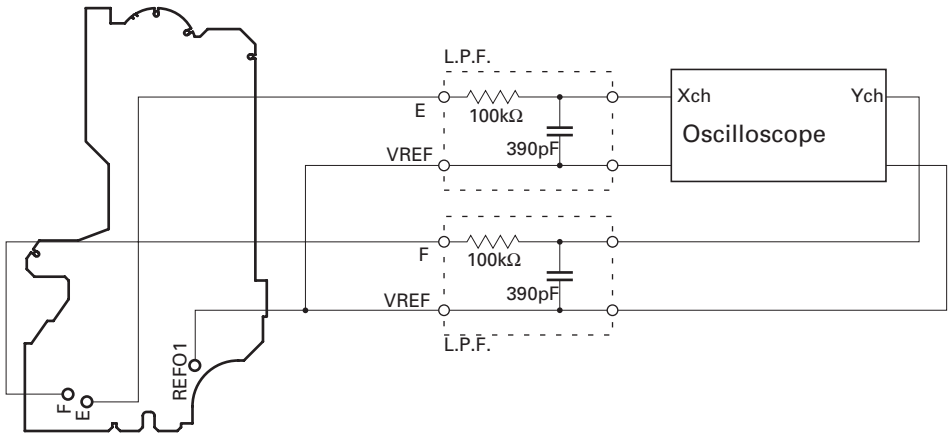
• **Purpose :**
To check that the grating is within an acceptable range when the PU unit is changed.

• **Symptoms of Mal-adjustment :**
If the grating is off by a large amount symptoms such as being unable to close tracking, being unable to perform track search operations, or taking a long time for track searching.

• **Method :**

• Measuring Equipment	• Oscilloscope, Two L.P.F.
• Measuring Points	• E, F, REFO1
• Disc	• TCD-782
• Mode	• TEST MODE

CD CORE UNIT(S10)



• **Checking Procedure**
1. In test mode, load the disc and switch the 3V regulator on.
2. Using the → and ← buttons, move the PU unit to the innermost track.
3. Press key 3 to close focus, the display should read "91". Press key 2 to implement the tracking balance adjustment the display should now read "81". Press key 3. The display will change, returning to "81" on the fourth press.
4. As shown in the diagram above, monitor the LPF outputs using the oscilloscope and check that the phase difference is within 75° . Refer to the photographs supplied to determine the phase angle.
5. If the phase difference is determined to be greater than 75° try changing the PU unit to see if there is any improvement. If, after trying this a number of times, the grating angle does not become less than 75° then the mechanism should be judged to be at fault.

• **Note**
Because of eccentricity in the disc and a slight misalignment of the clamping center the grating waveform may be seen to "wobble" (the phase difference changes as the disc rotates). The angle specified above indicates the average angle.

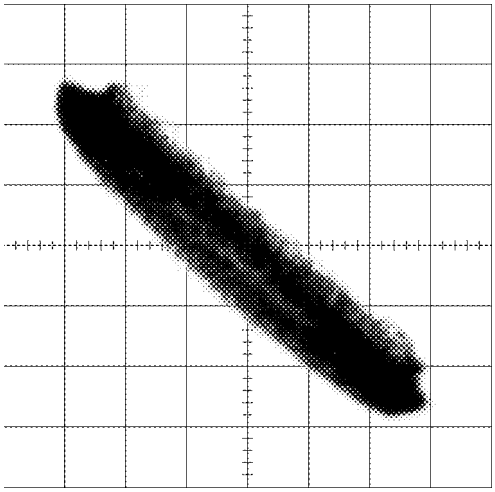
• **Hint**
Reloading the disc changes the clamp position and may decrease the "wobble".

Grating waveform

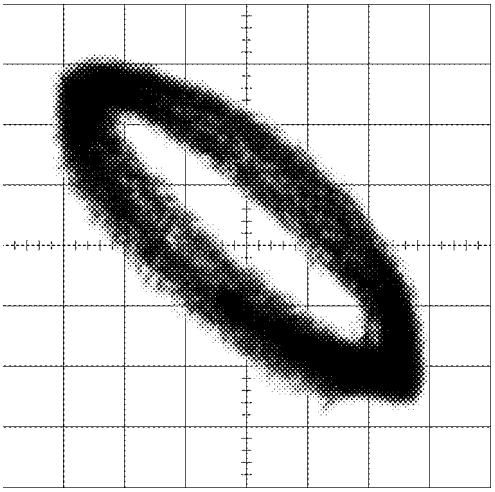
Ech → Xch 20mV/div, AC
Fch → Ych 20mV/div, AC

A

0°

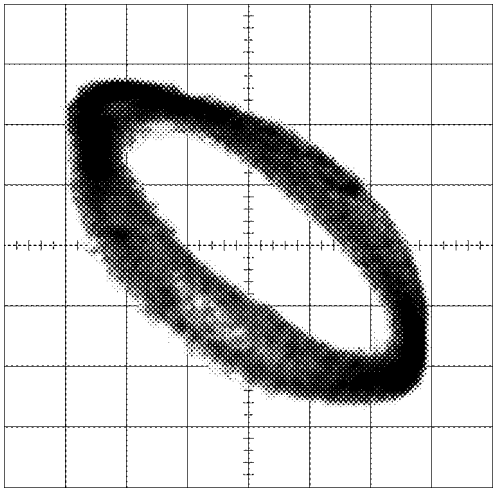


30°

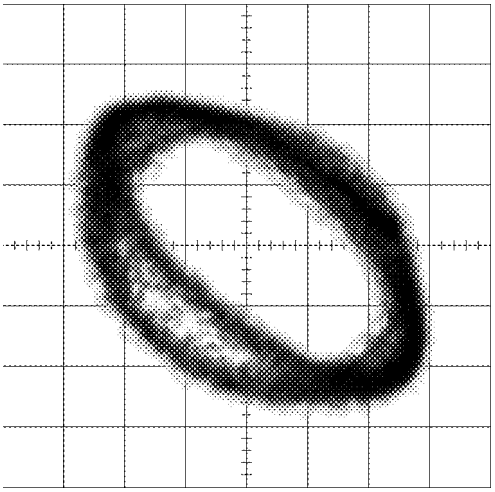


B

45°



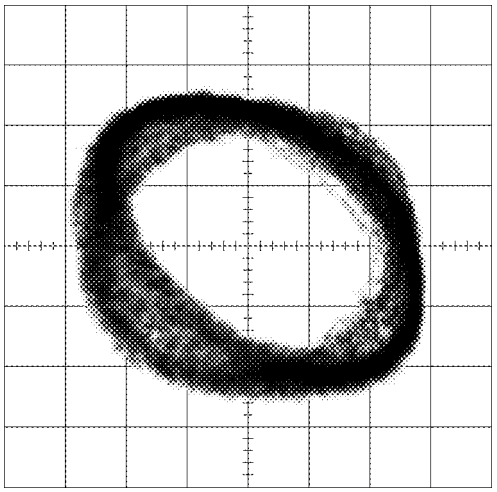
60°



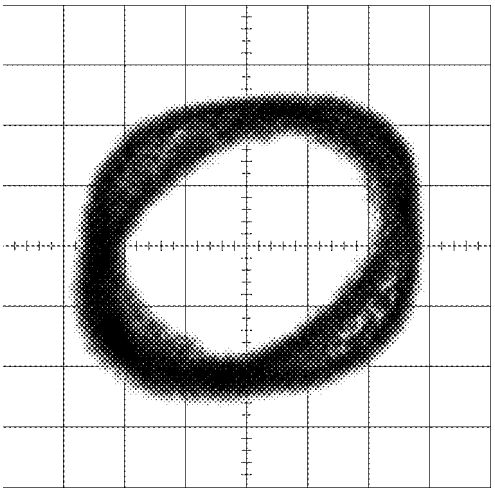
C

D

75°



90°



E

F

6.3 ERROR MODE

● Error Messages

If a CD is not operative or stopped during operation due to an error, the error mode is turned on and cause(s) of the error is indicated with a corresponding number. This arrangement is intended at reducing nonsense calls from the users and also for facilitating trouble analysis and repair work in servicing.

(1) Basic Indication Method

1) When SERRORM is selected for the CSMOD (CD mode area for the system), error codes are written to DMIN (minutes display area) and DSEC (seconds display area). The same data is written to DMIN and DSEC. DTNO remains in blank as before.

2) Head unit display examples

Depending on display capability of LCD used, display will vary as shown below. xx contains the error number.

8-digit display	6-digit display	4-digit display
ERROR–xx	ERR–xx	E–xx

(2) Error Code List

Code	Class	Displayed error code	Description of the code and potential cause(s)
10	Electricity	Carriage Home NG SERVO LSI Communication Error	CRG can't be moved to inner diameter. CRG can't be moved from inner diameter. → Failure on home switch or CRG move mechanism. Communication error between microcomputer and SERVO LSI.
11	Electricity	Focus Servo NG	Focusing not available. → Stains on rear side of disc or excessive vibrations on REWRITABLE.
12	Electricity	Spindle Lock NG Subcode NG	Spindle not locked. Sub-code is strange (not readable). → Failure on spindle, stains or damages on disc, or excessive vibrations. A disc not containing CD-R data is found. Turned over disc are found, though rarely. CD signal error.
17	Electricity	Setup NG	AGC protection doesn't work. Focus can be easily lost. → Damages or stains on disc, or excessive vibrations on REWRITABLE.
30	Electricity	Search Time Out	Failed to reach target address. → CRG tracking error or damages on disc.
44	Electricity	ALL Skip	Skip setting for all track. (CD-R/RW)
50	Mechanism	CD On Mech Error	Mechanical error during CD ON. → Defective loading motor, mechanical lock and mechanical sensor.
A0	System	Power Supply NG	Power (VD) is ground faulted. → Failure on SW transistor or power supply (failure on connector).

Remarks: Mechanical errors are not displayed (because a CD is turned off in these errors).

Unreadable TOC does not constitute an error. An intended operation continues in this case.

Upper digits of an error code are subdivided as shown below:

1x: Setup relevant errors, 3x: Search relevant errors, Ax: Other errors.

6.4 SYSTEM MICROCOMPUTER TEST PROGRAM

● PCL output

In the normal operation mode (with the detachable panel installed, the ACC switched ON, the standby mode cancelled), shift the TESTIN (Pin 15) terminal to H. The clock signal is output from the PCL terminal (Pin 14). The frequency of the clock signal is 786.432kHz that is one 16th of the fundamental frequency.The clock signal should be 786.432kHz ± 31.5Hz. If the clock signal is out of the range, the X'tal (X601) should be replaced with new one.

7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 DISASSEMBLY

● **Removing the Case (not shown)**

1. Remove the Case.

● **Removing the CD Mechanism Module (Fig.1)**

1 Remove the four screws.

Disconnect the connector and then remove the CD Mechanism Module.

● **Removing the Grille Assy (Fig.1)**

2 Release the two latchs and then remove the Grille Assy.

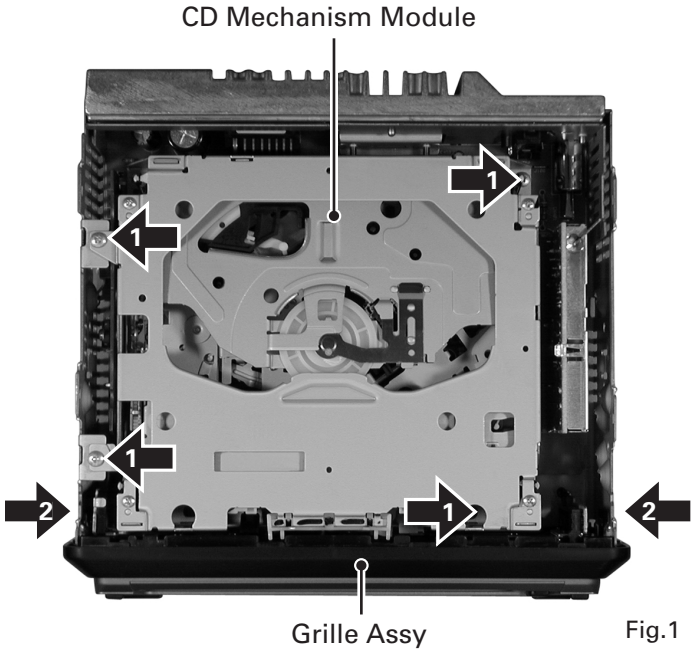


Fig.1

● **Removing the Tuner Amp Unit (Fig.2)**

1 Remove the screw.

2 Remove the three screws.

3 Straighten the tabs at three locations indicated.

4 Remove the screw and then remove the Tuner Amp Unit.

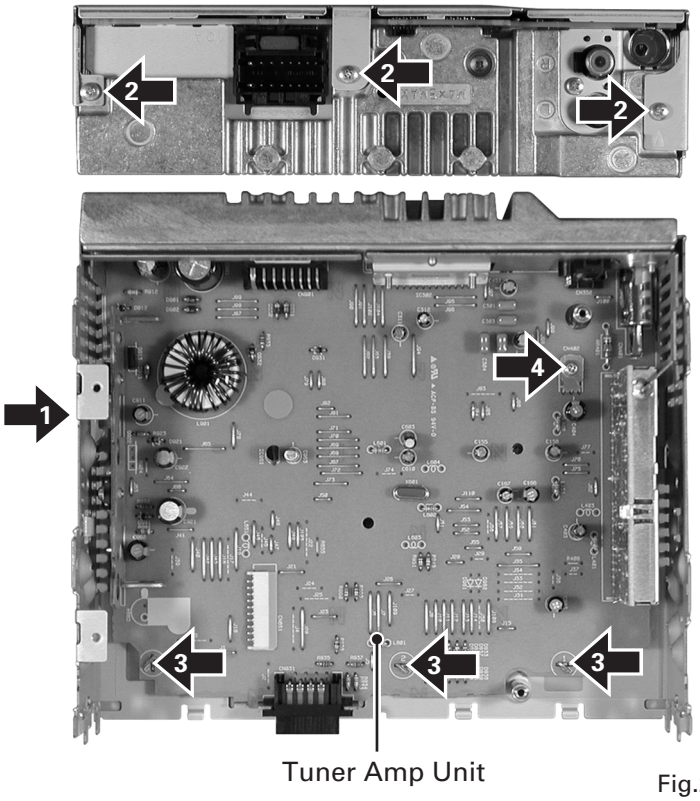
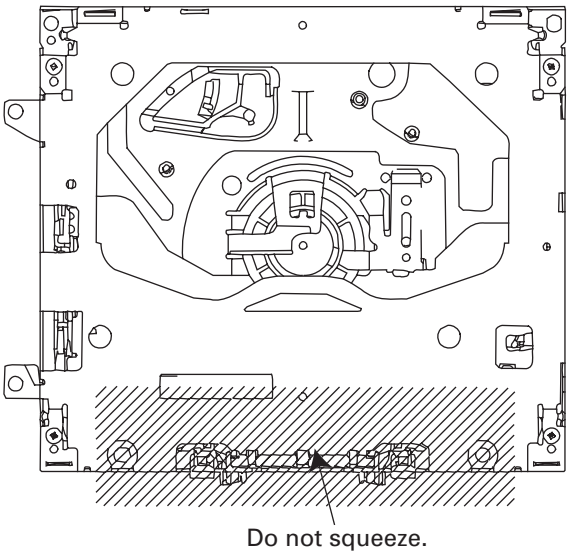


Fig.2

● How to hold the Mechanism Unit

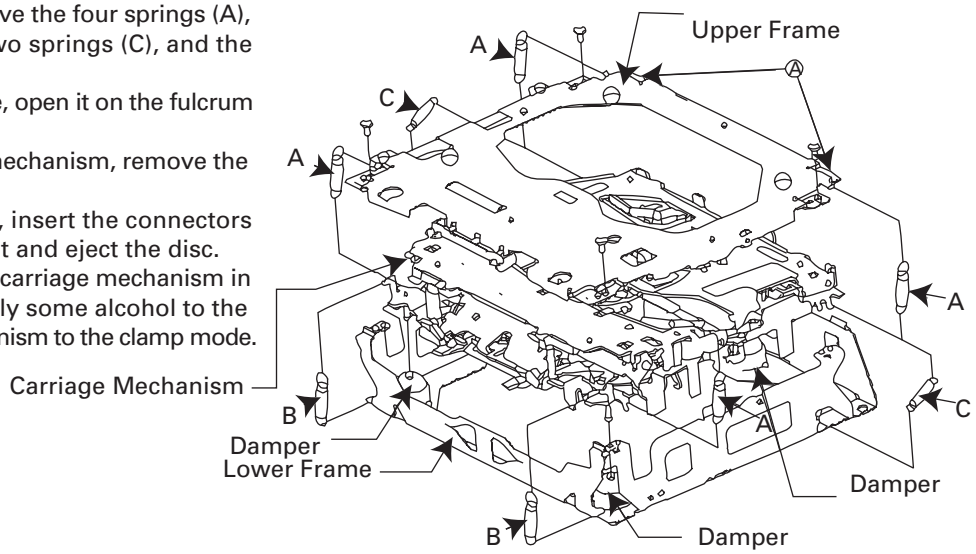
1. Hold the top and bottom frame.
2. Do not squeeze top frame's front portion too tight, because it is fragile.



● Removing the Upper and Lower Frames

1. With a disc clamped, remove the four springs (A), the two springs (B), the two springs (C), and the four screws.
2. To remove the upper frame, open it on the fulcrum A.
3. While lifting the carriage mechanism, remove the three dampers.
4. With the frames removed, insert the connectors coming from the main unit and eject the disc.

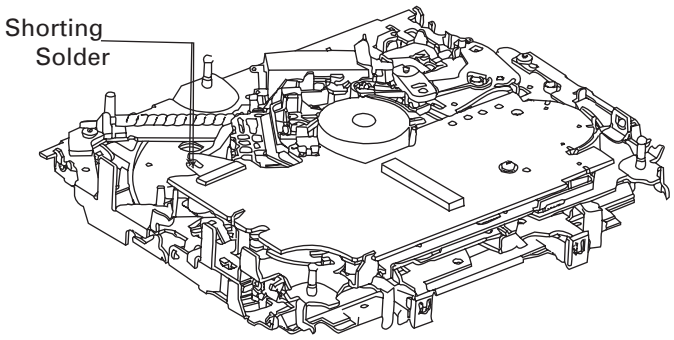
Caution: Before installing the carriage mechanism in the frames, be sure to apply some alcohol to the dampers and set the mechanism to the clamp mode.

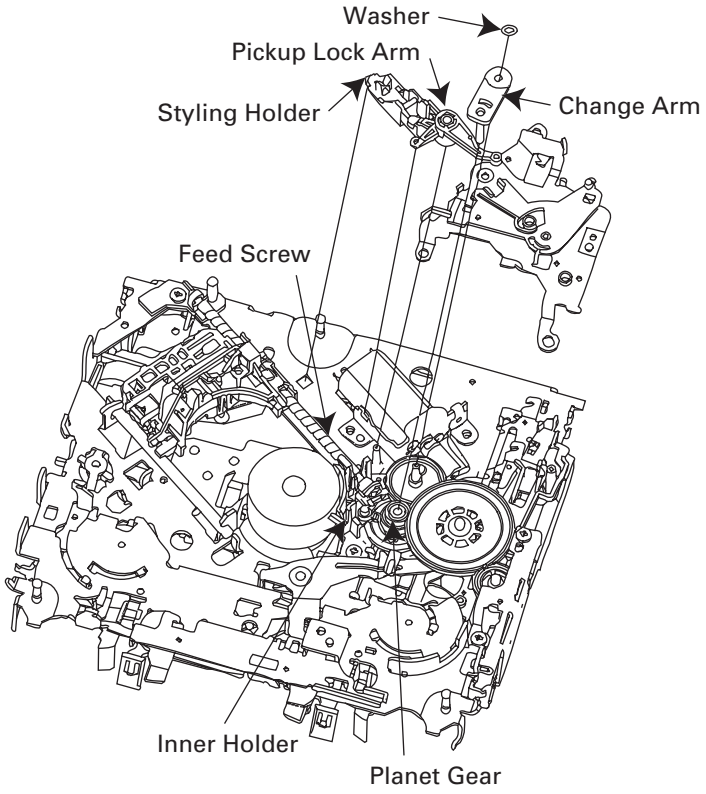


● Removing the Pickup Unit

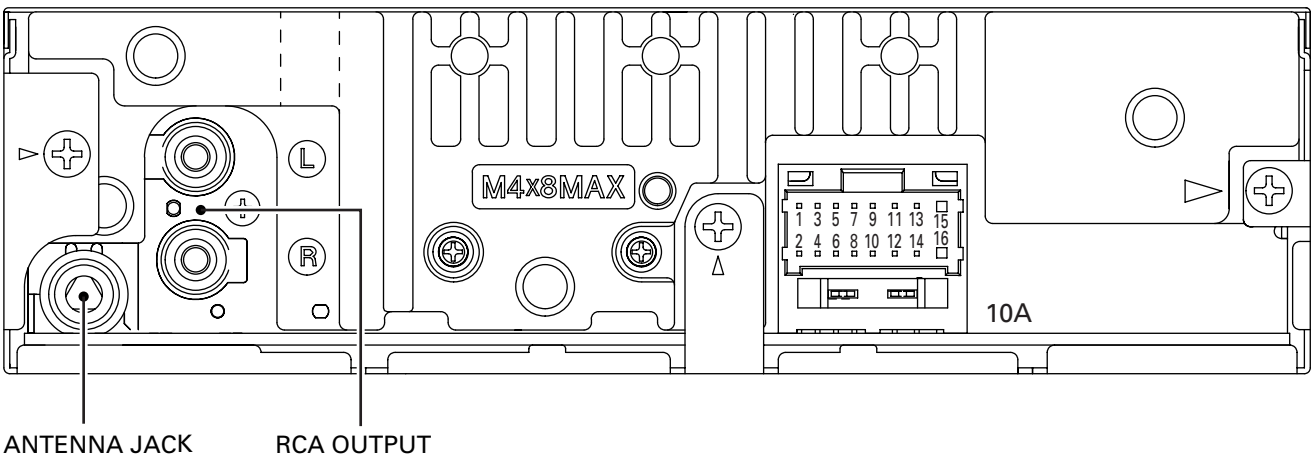
1. Apply shorting solder to the Pickup flexible cable. Disconnect the cable.
2. Set the mechanism to the clamp mode.
3. Remove the lead wires from the inner holder.
4. Remove the washer, styling holder, change arm, and pickup lock arm.
5. While releasing from the hook of the inner holder, lift the end of the feed screw.

Caution: In assembling, move the planet gear to the load/eject position before setting the feed screw in the inner holder.





7.1.2 CONNECTOR FUNCTION DESCRIPTION



Pin No.		Pin No.	
1	FR+	9	-
2	RR+	10	-
3	FR-	11	B.REMOTE
4	RR-	12	-
5	FL+	13	-
6	RL+	14	ACC
7	FL-	15	GND
8	RL-	16	B.UP

7.2 PARTS

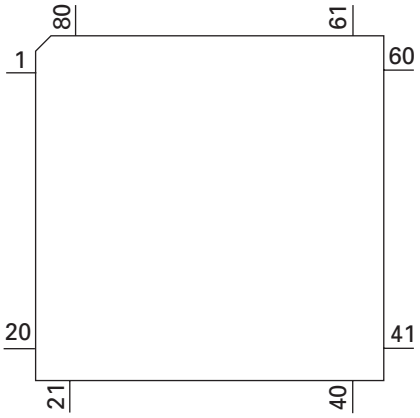
7.2.1 IC

● **Pin Functions(PE5449A)**

Pin No.	Pin Name	I/O	Function and Operation
1	MODEL1		Model port 1
2,3	NC		Not used
4	AVSS		A/D GND
5,6	NC		Not used
7	AVREF1		A/D converter reference voltage
8	KYDT	I	Key data input
9	DPDT	O	Display data output
10	NC		Not used
11	TUNPDI	I	PLL IC data input
12	TUNPDO	O	PLL IC data output
13	TUNPCK	O	PLL IC clock output
14	PCL	O	Clock adjustment output
15	TESTIN	I	Test program mode input
16	XSI	I	Serial data input
17	XSO	O	Serial data output
18	XSCK	O	Serial data clock output
19,20	NC		Not used
21	$\overline{\text{SWVDD}}$	O	Keyboard unit power supply control output
22	ILMPW	O	Illumination power supply control output
23	NC		Not used
24	XRST	O	CD LSI reset output
25	XA0	O	CD LSI identification control signal output
26	XSTB	O	CD LSI strobe output
27	CLAMSW		Not used
28	CONT	O	Servo driver power supply control output
29	LOEJ	O	CD load motor LOAD/EJECT direction exchange output
30	CLCONT	O	Driver input select output
31	NC		Not used
32	DALMON	O	Stand-by output
33	VSS1		GND
34	BRST		Not used
35	BRXEN		Not used
36	BRSQ		Not used
37	ROMDATA	O	ROM collection data output (Not used)
38	ROMCLK	O	ROM collection clock output (Not used)
39	ROMCS	O	ROM collection chip select output (Not used)
40	RECIEVE		During RDS data reception
41	VDCONT	O	VD control output
42	NC		Not used
43	SYSPW	O	System power supply control output
44,45	NC		Not used
46	KEY2		Not used
47	NC		Not used
48	MUTE	O	System mute output
49	ANTPW	O	B. REMOTE output
50	NC		Not used
51	VST	O	Strobe pulse output for electronic volume
52	VDT	O	Data output for electronic volume
53	VCK	O	Clock output for electronic volume
54	NC		Not used
55	TUNPCE2	O	EEPROM chip enable output 2
56	TUNPCE1	O	EEPROM chip enable output 1
57	RDT	I	RDS demodulation data input (Not used)
58	RDSLK	I	RDS LK signal input (Not used)
59	RDS57K	I	RDS 57kHz pulse count input (Not used)
60	$\overline{\text{RESET}}$	I	Reset input
61	LDET		Not used

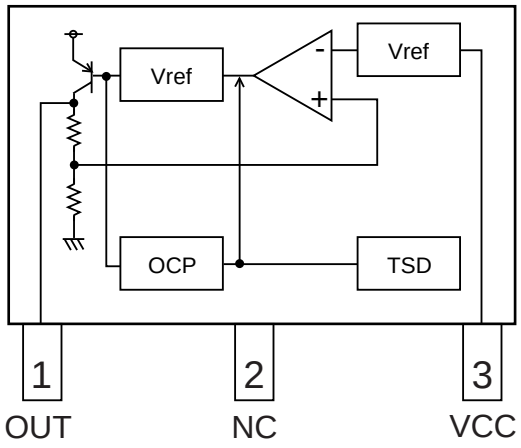
Pin No.	Pin Name	I/O	Function and Operation
62	RCK	I	RDS demodulation clock input (Not used)
63	$\overline{\text{ASENS}}$	I	ACC sense input
64	$\overline{\text{BSENS}}$	I	Back up sense input
65	DSENS	I	Grille detach sense input
66	INTRQ	I	SOURCE key sense input
67	VSS0		GND
68	VDD1		Power supply
69	X2		Crystal oscillator connection pin
70	X1		Crystal oscillator connection pin
71	IC(VPP)		Connect to GND
72	NC		Not used
73	XT1		Connect to GND
74	VDD0		Power supply
75	AVDD		Positive power supply terminal for analog circuit
76	SL	I	SD level input from tuner
77	TEMP		Connect to VDD
78	VDSENS	I	VD power supply voltage sense input
79	DISCSENS	I	CD DISC sense input
80	STRKEY1		NC

* PE5449A



IC's marked by * are MOS type.
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

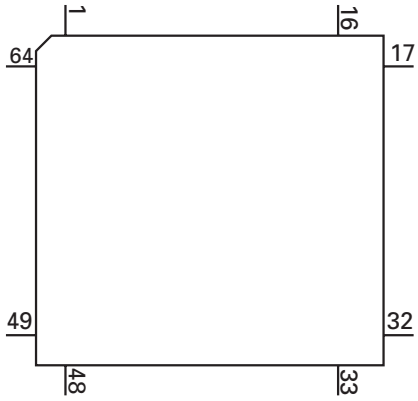
BA33BC0FP



● Pin Functions(PD6340A)

Pin No.	Pin Name	I/O	Function and Operation
1-5	SEG4-0	O	LCD segment output
6-9	COM3-0	O	LCD common output
10	VLCD		LCD drive power supply
11-14	KST3-0	O	Key strobe output
15,16	KDT0,1	I	Key data input (analogue input)
17	REW	I	Remote control reception input
18	DPDT	I	Display data input
19	NC		Not used
20	KYDT	O	Key data output
21	MODA		GND
22	X0		Crystal oscillator connection pin
23	X1		Crystal oscillator connection pin
24	VSS		GND
25,26	KDT2,3	I	Key data input
27	NC		Not used
28	KST4	O	Key strobe output
29-32	NC		Not used
33-55	SEG35-13	O	LCD segment output
56	VDD		Power supply
57-64	SEG12-5	O	LCD segment output

* PD6340A

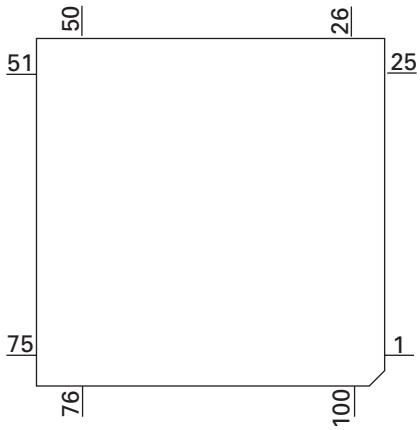


● Pin Functions(UPD63712AGC)

Pin No.	Pin Name	I/O	Function and Operation
1	LD	O	Output of LD
2	PD	I	Input of PD
3	PN	I	Assignment of pickup polarity
4	AVDD		Power supply for the analog system
5	DGND		Ground for digital circuits
6	RFOK	O	Output of RFOK
7	INTQ	O	Interruption signals to the external microcomputer
8	$\overline{RST}$	I	Input of reset
9	A0	I	Command/Parameter discrimination signal input
10	$\overline{STB}$	I	Data strobe signal input
11	$\overline{SCK}$	I	Serial data clock input
12	SO	O	Serial data output
13	SI	I	Serial data input
14	DVDD		Power supply for digital circuits
15	DAVDD		Power supply for DAC
16	ROUT	O	Output of audio for the right channel
17	DAGND		GND for DAC
18	REGC		Connected to the capacitor for band gap
19	DAGND		GND for DAC
20	LOUT	O	Output of audio for the left channel
21	DAVDD		Power supply for DAC
22	XVDD		Power supply for the crystal oscillator
23	$\overline{XTAL}$	O	Connected to the crystal oscillator
24	XTAL	I	Connected to the crystal oscillator
25	XGND		Ground for the crystal oscillator
26	DVDD		Power supply for digital circuits
27	C1D1	O	Information on error correction
28	C1D2	O	Information on error correction
29	C2D1	O	Information on error correction
30	C2D2	O	Information on error correction
31	C2D3	O	Information on error correction
32	LOCK	O	Output of LOCK
33	MIRR	O	MIRR signal
34	HOLD	O	HOLD signal
35	PLCK	O	Output of PLCK
36	C16M	O	Output of 16.9344MHz
37	DGND		Ground for digital circuits
38	TX	O	DAI output
39	EMPH	O	Pre-emphasis information output
40	FLAG	O	The flag for which output sound data cannot be corrected is outputted
41	DVDD		Power supply for digital circuits
42	LIMIT	I	Signal is inputted when the register can be read
43	$\overline{XTALEN}$	I	Permission to oscillate
44	DGND		Ground for digital circuits
45	DIN	I	Input of audio data
46	DOUT	O	Output of audio data
47	SCKIN	I	Clock input for audio data
48	SCKO	O	Clock output for audio data
49	LRCKIN	I	Input of LRCK for audio data
50	LRCK	O	Output LRCK for audio data
51	DVDD		Power supply for digital circuits
52	FD+	O	Output of focus drive PWM
53	FD-	O	Output of focus drive PWM
54	TD+	O	Output of tracking drive PWM
55	TD-	O	Output of tracking drive PWM
56	SD+	O	Output of thread drive PWM
57	SD-	O	Output of thread drive PWM
58	MD+	O	Output of spindle drive PWM
59	MD-	O	Output of spindle drive PWM
60	DGND		Ground for digital circuits

Pin No.	Pin Name	I/O	Function and Operation
61	TESTEN	I	Connected to GND
62-66	TEST4-0	I	Connected to GND
67	ADGND		GND for DAC
68	EFM	O	Output of EFM signals
69	ASY	I	Input of asymmetry
70	ADVDD		Power supply for DAC
71	RFI	I	Input of RF
72, 73	EQ2, 1		Equalizer 2, 1
74	RF-	I	Reversal input of RF
75	RF2-	I	Reversal input of RF2
76	AGCO	O	Output of RF
77	AGCI	I	Input of AGC
78	RFO	O	Output of RF
79	ATEST	O	Analog tests
80	C3T		Connection to the capacitor for detecting 3T
81	AGND		Ground for the analog system
82	A	I	Input of A
83	C	I	Input of C
84	B	I	Input of B
85	D	I	Input of D
86	F	I	Input of F
87	E	I	Input of E
88	VREFIN	I	Photo-detector input bias voltage
89	AVDD		Power supply for the analog system
90	REFOUT	O	Output of reference voltage
91	REFC		Connected to the capacitor for output of REFOUT
92	FE-	I	Reversal input of FE
93	FEO	O	Output of FE
94	ADCIN	I	TEST
95	TE-	I	Reversal input of TE
96	TEO	O	Output of TE
97	TE2	O	TE2
98	TEC	I	TEC
99	AGND		Ground for the analog system
100	PWMSW	I	Servo PWM mode switching

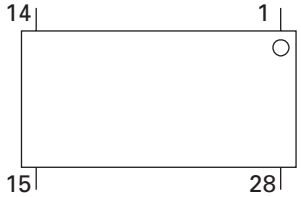
* UPD63712AGC



● Pin Functions(BA5835FP)

Pin No.	Pin Name	Function and Operation
1	VR	Input pin for reference voltage
2	OPIN2(+)	Input pin for non-inverting input for CH2 preamplifier
3	OPIN2(-)	Input pin for inverting input for CH2 preamplifier
4	OPOUT2	Output pin for CH2 preamplifier
5	OPIN1(+)	Input pin for non-inverting input for CH1 preamplifier
6	OPIN1(-)	Input pin for inverting input from CH1 preamplifier
7	OPOUT1	Output pin for CH1 preamplifier
8	GND	Ground pin
9	MUTE	Mute control pin
10	POWVCC1	Power supply pin for CH1, CH2, and CH3 at "Power" stage
11	VO1(-)	Driver CH1 - Negative output
12	VO1(+)	Driver CH2 - Positive output
13	VO2(-)	Driver CH2 - Negative output
14	VO2(+)	Driver CH2 - Positive output
15	VO3(+)	Driver CH2 - Positive output
16	VO3(-)	Driver CH2 - Negative output
17	VO4(+)	Driver CH4 - Positive output
18	VO4(-)	Driver CH4 - Negative output
19	POWVCC2	Power supply pin for CH4 at "Power" stage
20	GND	Ground pin
21	CNT	Control pin
22	LDIN	Loading input
23	OPOUTSL	Output pin for preamplifier for thread
24	OPINLSL	Input pin for preamplifier for thread
25	OPOUT3	CH3 preamplifier output pin
26	OPIN3(-)	Input pin for inverting input for CH3 preamplifier
27	OPIN3(+)	Input pin for non-inverting input for CH3 preamplifier
28	PREVCC	PreVcc

BA5835FP



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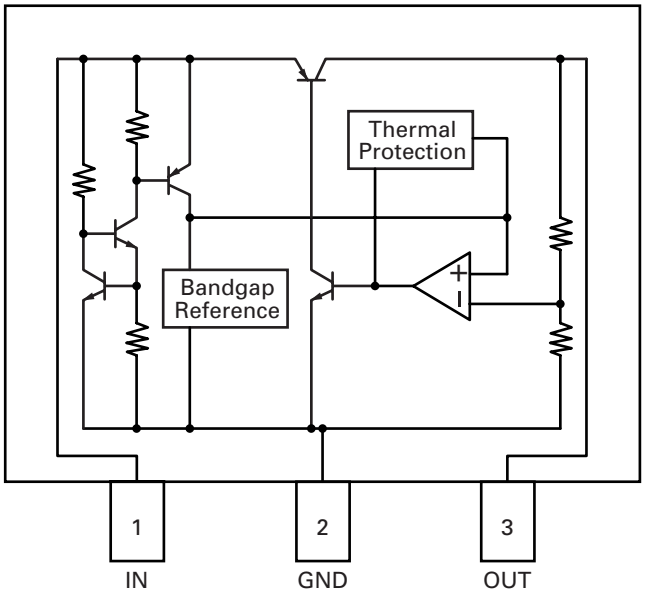
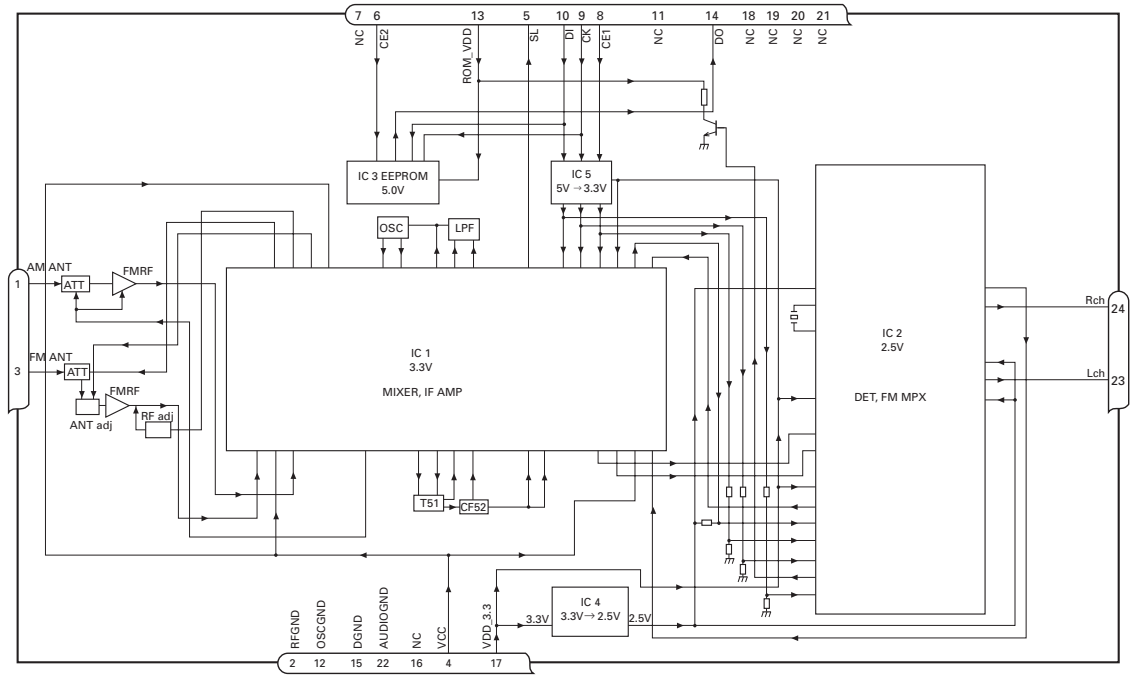


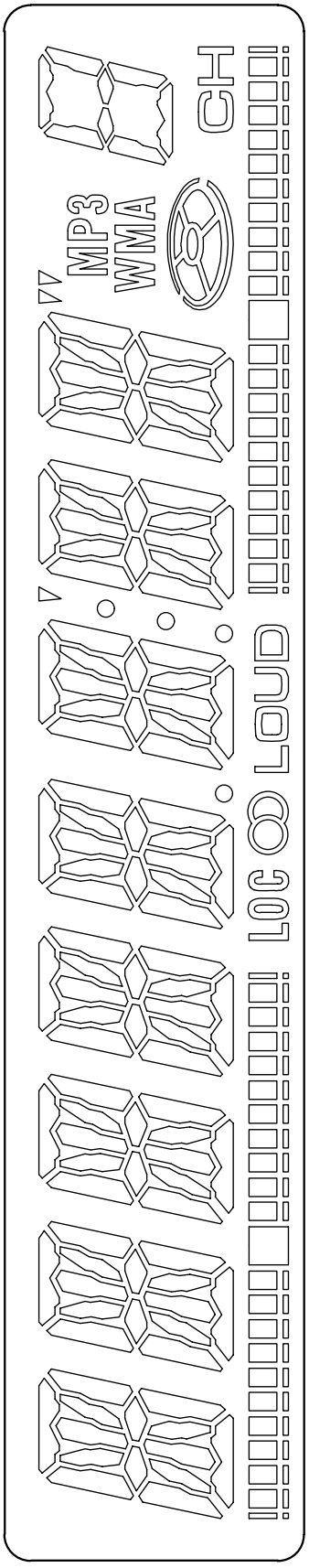
● FM/AM Tuner Unit



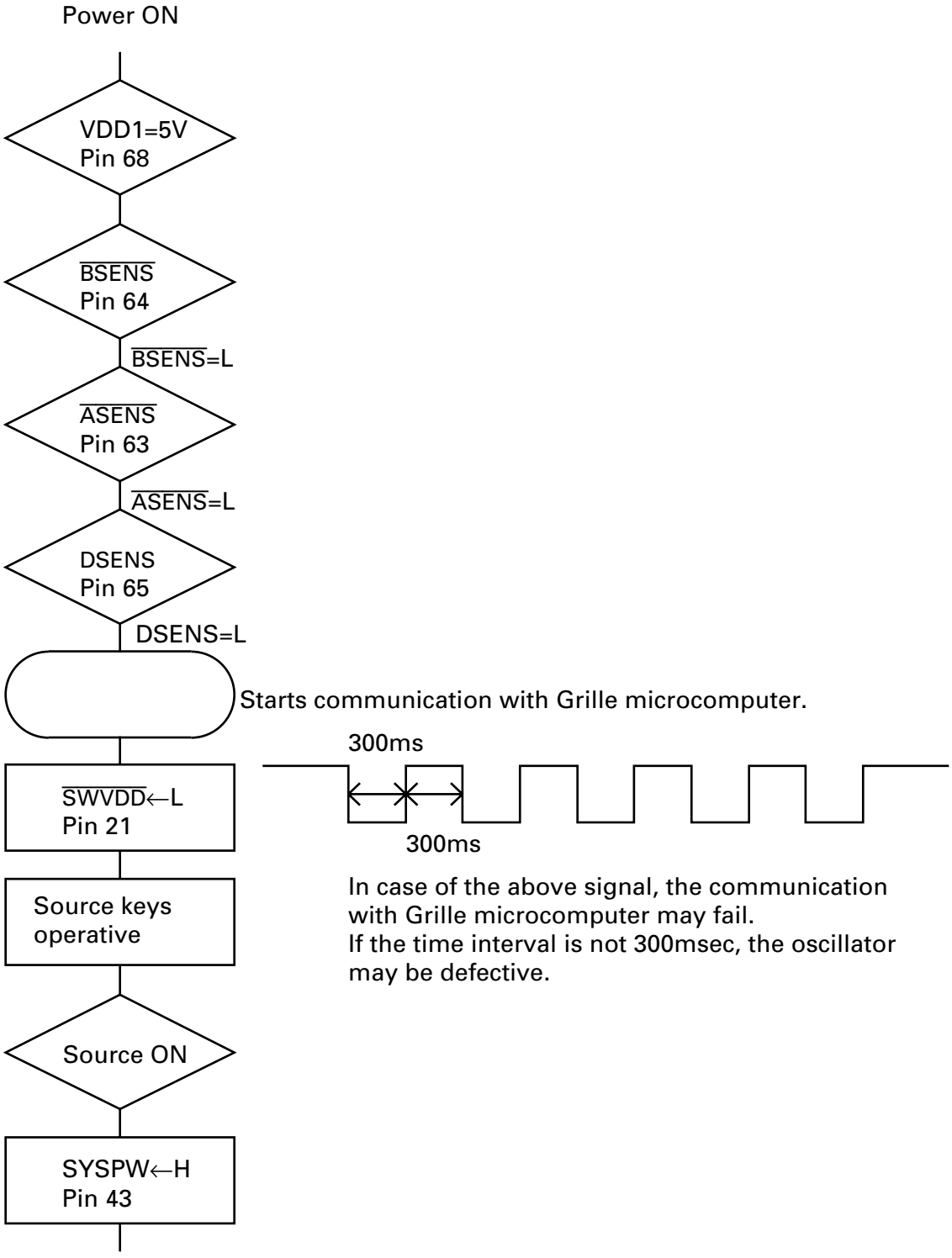
No.	Symbol	I/O	Explain	
1	AMANT	I	AM antenna input	AM antenna input high impedance AMANT pin is connected with an all antenna by way of 4.7μH. (LAU type inductor) A series circuit including an inductor and a resistor is connected with RF ground for the countermeasure against the hum of power transmission line.
2	RFGND		RF ground	Ground of antenna block
3	FMANT	I	FM antenna input	Input of FM antenna 75Ω Surge absorber(DSP-201M-S00B) is necessary.
4	VCC		power supply	The power supply for analog block. D.C 8.4V ± 0.3V
5	SL	O	signal level	Output of FM/AM signals level
6	CE2	I	chip enable-2	Chip enable for EEPROM "Low" active
7	NC		non connection	Not used
8	CE1	I	chip enable-1	Chip enable for AF•RF "High" active
9	CK	I	clock	Clock
10	DI	I	data in	Data input
11	NC		non connection	Not used
12	OSCGND		osc ground	Ground of oscillator block
13	ROM_VDD		power supply	Power supply for EEPROM pin 13 is connected with a power supply of micro computer.
14	DO	O	data out	Data output
15	DGND		digital ground	Ground of digital block
16	NC		non connection	Not used
17	VDD_3.3		power supply	The power supply for digital block. 3.3V ± 0.2V
18	NC		non connection	Not used
19	NC		non connection	Not used
20	NC		non connection	Not used
21	NC		non connection	Not used
22	AUDIOGND		audio ground	Ground of audio block
23	L ch	O	L channel output	FM stereo "L-ch" signal output or AM audio output
24	R ch	O	R channel output	FM stereo "R-ch" signal output or AM audio output

7.2.2 DISPLAY

● **LCD(CAW1847)**



7.3 OPERATIONAL FLOW CHART



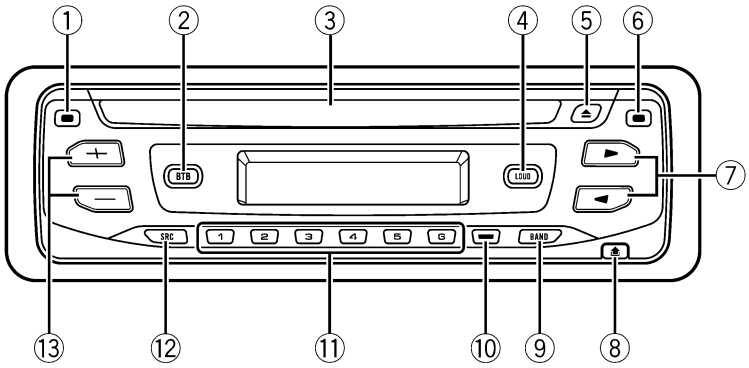
Completes power-on operation.(After that, proceed to each source operation.)

7.4 CLEANING

Before shipping out the product, be sure to clean the following portions by using the prescribed cleaning tools:

Portions to be cleaned	Cleaning tools
CD pickup lenses	Cleaning liquid : GEM1004 Cleaning paper : GED-008

8. OPERATIONS



Head unit

① **CLOCK button**
Press to change to the clock display.

② **BTB button**
Press to select various BTB (bass treble booster) setting.

③ **Disc loading slot**
Insert a disc to play.

④ **LOUDNESS button**
Press to turn loudness on or off.

⑤ **EJECT button**
Press to eject a CD from your built-in CD player.

⑥ **AUDIO button**
Press to select various sound quality controls.

⑦ **◄/► buttons**
Press to do manual seek tuning, fast forward, reverse and track search controls. Also used for controlling functions.

⑧ **DETACH button**
Press to remove the front panel from the head unit.

⑨ **BAND button**
Press to select among three FM bands and one AM band and to cancel the control mode of functions.

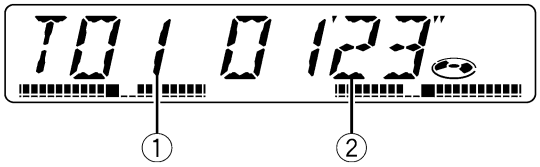
⑩ **LOCAL/BSM button**
Press to turn local function on or off.
Press and hold to turn BSM function on or off.

⑪ **1–6 buttons**
Press for preset tuning.

⑫ **SOURCE button**
This unit is turned on by selecting a source. Press to cycle through all the available sources.

⑬ **VOLUME (+/–) buttons**
Press to increase or decrease the volume.

Playing a CD



① **Track number indicator**
Shows the track currently playing.

② **Play time indicator**
Shows the elapsed playing time of the current track.

1 Insert a CD into the CD loading slot.
Playback will automatically start.
- **Be sure to turn up the label side of a disc.**
- After a CD has been inserted, press **SOURCE** to select the built-in CD player.
- You can eject a CD by pressing **EJECT**.

2 Use VOLUME to adjust the sound level.

3 To perform fast forward or reverse, press and hold ◄ or ►.

4 To skip back or forward to another track, press ◄ or ►.
Pressing ► skips to the start of the next track. Pressing ◄ once skips to the start of the current track. Pressing again will skip to the previous track.

Notes
- The built-in CD player plays one, standard, 12-cm or 8-cm (single) CD at a time. Do not use an adapter when playing 8-cm CDs.
- Do not insert anything other than a CD into the CD loading slot.
- If an error message such as **ERROR-11** is displayed.

Playing tracks in a random order

Random play lets you play back tracks on the CD in a random order.

● **Press 4 repeatedly to turn random play on or off.**
When random play is on, **RDM** appears in the display.

Repeating play

Repeat play lets you hear the same track over again.

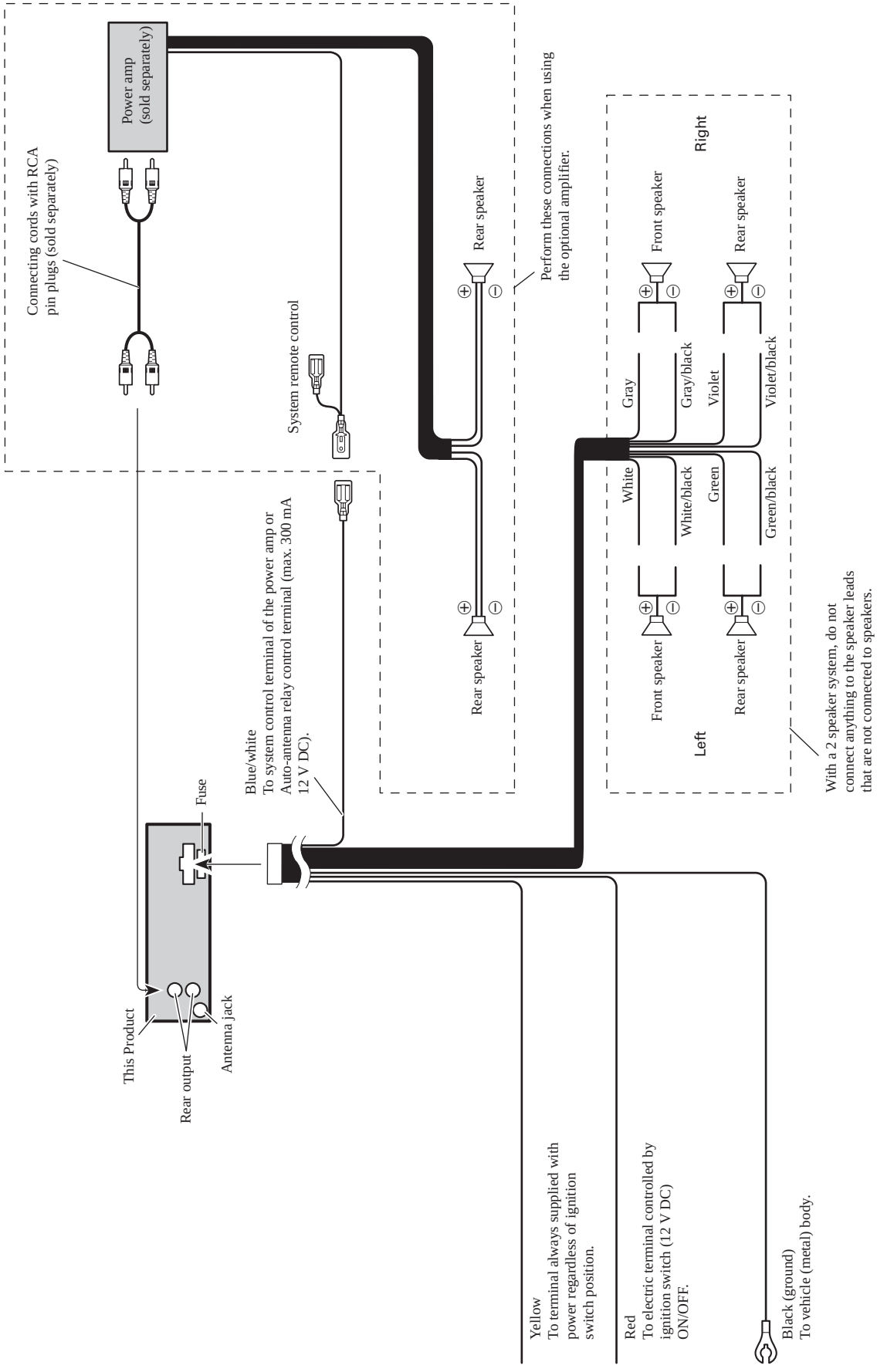
● **Press 5 repeatedly to turn repeat play on or off.**
When repeat play is on, **RPT** appears in the display.
- If you perform track search or fast forward/reverse, repeat play is automatically cancelled.

Pausing CD playback

Pause lets you temporarily stop playback of the CD.

● **Press 6 repeatedly to turn pause on or off.**
When pause is on, **PAUSE** appears in the display.

● CONNECTION DIAGRAM



● Jigs List

Name	Jig No.	Remarks
Test Disc	TCD-782	Checking the grating
L.P.F.		Checking the grating (Two pieces)